

University News

Science Congress Special

CHRONICLE OF HIGHER EDUCATION & RESEARCH ★ JANUARY 1976 Re. 1



Dr. S. Y. Padmanabhan



Prof. T. E. Shanmugam



Dr. D. C. Tapadar



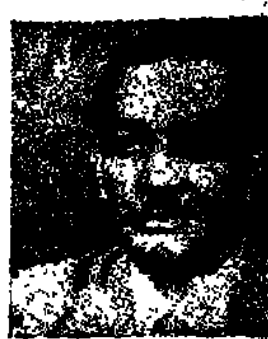
Prof. R. P. Singh



Dr. Sripati Bose



Dr. M. S. Swaminathan



Prof. M. C. Chatterjee



Dr. Apt K. Danda



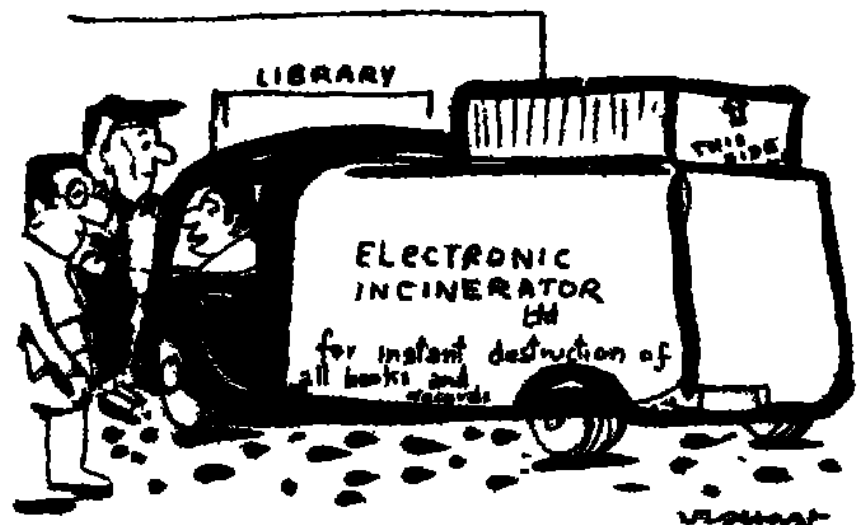
Dr. U. S. Srivastava



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Addition to Library

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*Opinions expressed in the articles
and reviews are individual and do
not necessarily reflect the policies
of the Association.*

Editor : ANJNI KUMAR

Taking Science to the Village

C. R. Mitra

I attach great significance to the fact that the sixty-third session of the Indian Science Congress has chosen as its focal theme 'Science and Integrated Rural Development'. I believe, this is the first time Indian Science has attempted to reach out into the village which contains the overwhelming masses of the Indian people. I would like to describe this event as an attempt by Indian Science to walk on two legs—one the heritage and the contribution of sophisticated science, the other the people who have to benefit from the expenditure on science. If Science has to justify its existence, it must ultimately enhance the material well-being of the people. If scientific progress is to harmonise with our life, one of its legs which has become strong, about which we are proud, where we have acquired international recognition, alone cannot take us very far. The other leg, which is weak, which is neglected and dispossessed must learn to limber and flex so that both the legs can work together.

Indian science suffers from an identity crisis. The crisis is more acute because during the past 25 years Indian science has distinguished itself in many areas. An impressive infrastructure has been built; we can boast of the third largest number of trained scientists in the world; nearly 0.5% of GNP is spent on R&D. The singular achievement in the fields of agriculture, preventive medicine, space and nuclear energy speak volumes of the capability of Indian science. Yet it has made only a minimal impact on an equally impressive growth in trade, commerce and industry during the same period. The momentum of industrial expansion is exclusively based on imported technology and has found no urge to depend on Indian science. On the other hand, Indian science is remote from the lifestream of the people. It would appear that Indian science has neither been invited at the banquet table of Indian industry nor has been able to share the simple fare of the Indian people. Rejected by one and rejecting the other, it has worked out an inner logic based on professionalism. This professionalism has been justified on the need to maintain standards and the so-called international character of science. In the quest of this wrong identity many folklores has been created and a distorted ethos nurtured.

Indian Science has thus built its own scriptural isolation and mystification. Science is supposed to be for the 'talented' and the 'gifted'. It is supposed to have some magical quality. Research is supposed to push the frontiers of knowledge, the performance of which has to be judged by the international scientific community. In the

(Contd. on Page 19)

The author is Director, BITS, Pilani.

63rd Science Congress

The 63rd annual session of the Indian Science Congress Association is being held at Visakhapatnam (Waltair) from January 3 to 7, 1976

About the Sectional Presidents whose photographs appear on the cover page. ..

Dr. M. S. Swaminathan, General President, 63rd Indian Science Congress, to be held at Visakhapatnam from 3rd to 7th January, 1976, was born in Tamil Nadu on August 7, 1925. He did the B. Sc. Degree of Kerala University and then took B. Sc. (A) from the Coimbatore Agricultural College in 1947. He took the Associate IARI Diploma in 1949 in Genetics and Plant Breeding from the Indian Agricultural Research Institute, New Delhi. He was conferred Ph. D. by the School of Agriculture, University of Cambridge, U.K., in 1952. He was an UNESCO Fellow in Genetics at the Agriculture University at Wageningen, the Netherlands, during 1949-50, Ph. D. scholar at the University of Cambridge, U.K. in 1950-52 and a Research Associate in Genetics at the University of Wisconsin, U.S.A. during 1953.

He joined the Central Rice Research Institute, Cuttack, in 1954 in the *japonica-indica* hybridization project. Later, he joined the Indian Agricultural Research Institute, New Delhi, as Cytogeneticist and became the Head of the Botany Division (1961-66) and later Director of the Institute (1966-72). He has been Director-General of the Indian Council of Agricultural Research and Secretary to the Government of India in the Ministry of Agriculture & Irrigation since 1972.

Throughout his career at the IARI from 1954-72, he had taken post-graduate lecture courses and had guided a large number of post-graduate students. Many of his former students occupy important positions in the

scientific world both in India and abroad. He and his students have published many scientific papers, besides being involved in the development of new varieties.

He is a Fellow of the Indian National Science Academy and the Indian Academy of Sciences. In 1971, the Swedish Seed Association, Svalof, elected him as an Honorary Fellow in recognition of his "monumental contributions to crop improvement in India". The Royal Society of London elected him a Fellow in 1973 for "his contributions to the genetics and breeding of crop plants and his applications of agricultural science that have resulted in improved crop production". The Council of Scientific and Industrial Research gave him the "Shanti Swarup Bhatnagar Award" for 1961 for contributions to biological sciences. The Czechoslovak Academy of Sciences chose him for the Mendel Centenary Award in 1965 for contributions to the growth and development of Mendelism. The Botanical Society of India awarded him the "Birbal Sahni Medal" in 1966. The Indian National Science Academy awarded him the Silver Jubilee Commemoration Medal in 1973 for contributions to agricultural research.

The Ramon Magsaysay Award for Community Leadership was awarded to him in 1971 for his contributions as "scientist, educator of both students and farmers, and administrator towards generating a new confidence in India's agricultural capability".

The President of India awarded to him "Padma Shri" in

1967 and "Padma Bhushan" in 1972.

The Sardar Patel University, Gujarat, Haryana Agricultural University, G.B. Pant University of Agriculture & Technology, the Andhra Pradesh Agricultural University, Jodhpur University and the Andhra University conferred Honorary D Sc Degrees on him for his contribution to crop improvement and production research.

He is currently President of the Nutrition Society of India and the Indian Society of Genetics and Plant Breeding.

He has played an important role in international collaboration in agricultural and nutrition research by serving on the Technical Advisory Committee to the Consultative Group on International Agricultural Research and the Protein Caloric Advisory Group to the U.N. System as the Vice-Chairman of these bodies. He is a Member of the Board of Trustees of the International Maize and Wheat Improvement Centre, Mexico (CIMMYT) and the International Crops Research Institute for the Semi-arid Tropics, Hyderabad (ICRISAT). He was a Vice-President of the International Congress of Genetics, the Hague, in 1963 and is currently a Vice-President of the Society for the Advancement of Breeding Research in Asia and Oceania (SABRAO). He has been chosen to head a Scientific Mission to review the work of the International Rice Research Institute, the Philippines.

Dr. (Mrs.) Sushila Swarup Mitra, President, Section of Medical & Veterinary Sciences, 63rd Indian Science Congress, was born on 7th November, 1925 in Multan (now in Pakistan). She was educated in Delhi and obtained the M.B.,B.S. degree of Panjab University from Lady Hardinge Medical College in 1948. After initial training as a House Physician she joined her research career under the Indian Council of Medical Research in 1949. She obtained Ph.D. degree of Calcutta University in 1961 while working in the Haematology Unit at the School of Tropical Medicine. She was awarded a fellowship by the University of Washington Seattle, U.S.A. in 1961 where she worked upto December, 1962 with Dr. C.A. Finch. During this period she has been working on the haematological problems as encountered in India and more particularly in Bengal. In 1964 she was awarded

the Shakuntala Amir Chand Prize of ICMR for research. She has published more than 100 papers in her subject in various National and International Journals. She is a member of various National and International Societies. She has participated in various International conferences. She was the Counsellor of Asian Society of Haematology during 1965-1969 and President, Indian Society of Haematology during 1971 and 1972. She has served as a Member of Haematology Expert Group of ICMR 1967-1969 and 1972-1975. She was selected Visiting Scientist under Indian Academy of Medical Sciences in 1974.

During the last 2 decades she has made significant contributions to the Science of Haematology. These include studies on haemoglobinopathies and thalassaemias, erythrocytic

enzyme deficiencies, ~~normal~~ and haemolytic anaemia patients and red cell metabolism during preservation of blood. She had demonstrated the relative importance of different enzymes in maintaining stability of red cells and pinpointed the pivotal role of the enzyme glutathione reductase. In the genetic studies that she carried out, she demonstrated the interaction of the genes for spherocytosis and thalassaemia resulting in haemolytic anaemia. She has also delineated the causes of haemorrhage in Kyasanur Forest Disease. She has evaluated the role of iron in the causation of anaemia and demonstrated that in cases of severe iron deficiency there is deficiency at the tissue level resulting in depressed activity of some of the iron dependent enzymes. Currently she is engaged in investigations relating to the role of iron deficiency on immunological competence.

Dr. S. Y. Padmanabhan, President, Section of Agricultural Sciences, 63rd Indian Science Congress, is at present Director of the Central Rice Research Institute, Cuttack, Orissa. He is an outstanding Plant Pathologist of India who has many firsts to his credit in rice pathological studies. For his pioneering work in the field of rice plant pathology, he has been awarded the Rafi Ahmed Kidwai award for the biennium 1968-69 and 1970-71. He was the first to standardise artificial infection procedures and the basis of classification of rice varieties into susceptibility groups in regard to blast and *Helminthosporium* diseases of rice. He organised successfully an All India Coordinated trials in about 52 centres in India, during the Fifties with varieties selected as resistant to blast and *helminthosporium* at the Central Rice Research Institute. An international coordination blast trials was also organized by him with materials received from different parts of the world. This led to the formulation of uniform blast nursery technique, of which he

was the co-author along with scientists from Ceylon and Japan.

The only standard contribution on the loss in yield caused by blast is by Dr. Padmanabhan. The results of his experimental studies on loss in yield was extended to field surveys on the occurrence of rice diseases and the loss caused by them in collaboration with I.A.R.S.

His contribution towards the epidemiology and the fore-cast of blast disease is one of the most outstanding contributions in phytopathology. He has made further practical contribution towards the control of blast disease through linking of forecasting techniques with economic spray schedules.

He has studied the epidemiology of *helminthosporium* disease including acre—biology of spore production and analysed of the factors associated with outbreak of opiphytotic of 1942. This is a classic study by itself.

His studies on the relation between soil deficiencies and occurrence of *helminthosporium* disease has led to the possibility

of the control of *helminthosporium* disease by appropriate soil amendments in the so-called endemic areas of the disease in India.

His current interests centre round studies on genetics of disease resistance and also induction of resistance through mutagenesis. He had proved that penetration phase of blast infection was controlled by polygenes whereas the development of infection inside the tissues was mostly due to major gene interactions.

His studies have shown that the resistance to bacterial blight was controlled by polygenes and that different donors had different sets of resistant genes. This finding had led to the initiation of breeding programme to incorporate different sources of resistance in new high yielding varieties.

He is an internationally recognised scientist. He is a fellow of Indian Academy of Sciences, Indian Phyto-pathological Society, Fellow of Indian Society of Plant Breeding & Genetics and a member of several national and international societies.

Dr. B. B. Bose, President, Section of Physiology, 63rd Indian Science Congress, was born on 20th April, in the year 1920. The family of Dr. Bose hails from Malkhanagar, Dacca, now in Bangladesh.

After graduation from the University of Dacca, he came to Calcutta, obtained his M.Sc. degree in Physiology in the year 1944 from the University College of Science and Technology.

During his student life in Dacca as well as in Calcutta, he was associated with freedom fighting terrorist activity and had to remain underground from time to time for which his academic carrier had to be sacrificed considerably.

Due to his interest on clinical haematology he joined the Calcutta Clinical Research Association. Here some of his observations on antigen-antibody reaction and work on hormones were very much appreciated by the association.

He then took service in Bengal Immunity Research Institute, Calcutta. Here he engaged himself in diversified field of activity of physiological interest. He worked in the pharmacological evaluation of newer synthetic compounds specially, arsenicals, pyrazolone, isoquinolines, B-amino Ketones etc. for finding newer and more potent remedies than the existing ones.

He obtained his Ph. D. degree from the University of Calcutta on his work on "Pharmacological evaluation of some (i) Arsenoxide derivatives, (ii) Pyrazolone, Quinoline, Isoquinoline, B-amino Ketones Compounds, as possible anti-protozoal and antispasmodics respectively.

His works on the study of structure activity relationship biological standardisation and work on the search of indigenous cardiac glycosides to replace the imported varieties are worth mentioning.

At present, he is engaged in the Dey's Medical Stores (Mfg) Pvt. Ltd., in their standardisation laboratory, in biological standardisation work. Here his observations, on the microbiological assay of penicillin, streptomycin, tetracycline, chloramphenicol nitrofurantoin inositol, etc., newer technique and modified methods of assay of these antibiotics and vitamins, have been published by him.

Dr. Bose though basically a physiologist, his work is in pharmacology line and he is a man of biological standardisation.

He is also a Fellow of the Institution of Chemists (India).

His life long association with pharmaceutical and drug industries, have given him experience of the multiverious problems specially in pharmacological, biological and microbiological standardisation lines that always arise from time to time in these industries.

Dr. D.C. Tapadar, President, Section of Engineering and Metallurgy, 63rd Indian Science Congress, was born on April 11, 1914 in Barisal (now in Bangladesh). He was educated in Goila High English School, Barisal from where he matriculated in 1931 in first division with distinction in three subjects. He passed the Intermediate Science Examination in 1933 in first division with distinction in Chemistry and graduated from Brojo Mohan College, Barisal in 1935, with Honours in Chemistry. In 1937 he passed M.Sc. in first Class, in Applied Chemistry from University College of Science of Technology, Calcutta standing first among the list of successful candidates and was awarded the University gold medal and Motilal Mullik gold medal. He received the D. Phil degree in 1951 from the University of Calcutta.

In March 1938, Dr. Tapadar joined the Indian Paper Pulp Co., Hazinagar, Naihati as a Research Chemist. He served the company for nearly 30 years in various

capacities as Pulp Supervisor, Chemist and Technical Manager.

He left IPP in January 1968 to join as the first Principal of the Institute of Paper Technology, Saharanpur from which post he retired in June 1974. In July 1974, Dr. Tapadar joined the Titaghur Paper Mill Co., as Head of the Research and Development Section of three units. Dr. Tapadar is one of the founder members of the Indian Pulp and Paper Technical Association and has served the organisation in various capacities, like a member of the Executive Committee, Editor-in-chief, Executive Secretary, Vice-President and President. The office of IPPTA was housed at the Institute of Paper Technology buildings, Saharanpur at the initiative of many prominent office bearers of IPPTA including Dr. Tapadar. He is a life member of IPPTA.

He is associated with a number of Scientific and Technical organisations in the country and abroad. He is a life member of the Indian Institute of Chemi-

cal Engineers, which he has served as a member of the Executive Council and as a Vice-President for a number of years. He is a Fellow of the Institution of Chemists (India). In 1974 he delivered Dr. S.K. Sen memorial lecture of the Institute of chemists & Dr. H.L. Roy memorial lecture of the Institute of Chemical Engineers.

He is also on several committees and adviser to organisations like Indian Standards Institution, Regional Research Laboratory of CSIR etc. He is a Rotarian having 10 years of 100% attendance to his credit and he is the President elect of the Rotary Club of Barrackpore, for the year 1975-76.

He is an Active Member of the Technical Association of the Pulp and Paper Industry, U.S.A., since 1946. He is a Fellow of the Royal Institute of Chemistry, London.

He has published about 50 technical and research papers in Scientific and technical journals.

Prof. T.E. Shanmugam, President, Section of Psychology & Educational Sciences, 63rd Indian Science Congress, was born in April, 1921. He had his school and college education in P.S. High School and Pachaiyappa's College, respectively, in Madras. He obtained first class and first rank in the M.A. examination in 1944, for which he was awarded the University gold medal. He worked as a Research Scholar and Research Fellow in the University of Madras in the years 1946-47 and 1948-49 respectively and obtained his M. Litt. and Ph. D. degrees. His research on the psychological aspects of delinquency and crime was a pioneering attempt in the country. He worked as a Lecturer and Assistant Professor in Government and Private Colleges for three years, before he joined the Department of Psychology, University of Madras as a Senior Lecturer in

1950. Subsequently he was appointed as Reader (1956) and Professor and Head in the same department (1965).

He has been Honorary Director, Juvenile Guidance Bureau, attached to the Juvenile Court, Madras since 1968. He was elected Honorary Fellow of the Indian Society of Criminology in February 1975.

Professor T.E. Shanmugam conducted Post-doctoral research work in the field of Personality with Professor H. J. Eysenck in the Institute of Psychiatry, University of London. He also spent 10 to 20 days in the Universities of Cambridge, Oxford, Sheffield, Liverpool and Manchester in U.K. and Marburg and Frankfurt Universities in West Germany. He attended the Annual Conference of the British Psychological Society in Cambridge and International Conference of Psychology in Marburg. He was a visiting

Professor to USSR (Moscow and Tbilisi Universities) in 1970 under the scheme sponsored by the University Grants Commission.

He has published eight books—four text books in Tamil and four research studies in English, 56 research papers and 300 popular articles. He has conducted original research in the field of Personality, which is reflected in his Publications.

He was founder-Member and subsequently Secretary and later President of Madras Psychology Society; founder-Member and subsequently President for two terms (1966-68) of the Indian Academy of Applied Psychology; founder-Member and Chairman of the Indian Society of Criminology; President-elect of Indian Psychology Association; Member British Psychology Society and was member Institute for Study and Treatment of Delinquency, London (ISTD) 1958-59.

Dr. Daroga Singh, President, Section of Statistics, 63rd Indian Science Congress was born in 1923 in a village in Uttar Pradesh. He received his primary and high school education in rural schools in Ghazipur. For his Bachelor and Master's degrees, he joined the University of Allahabad in 1942. He completed his Master's degree in Mathematics in 1946. For training in Agricultural-Statistics, he joined the Indian Council of Agricultural Research (I.C.A.R.) in 1947. After completion of Post-Graduate Diploma in Agricultural Statistics in 1949, he joined as a member of the staff in the I.C.A.R. He took Ph.D. degree in Mathematical Statistics from University of Delhi in 1962. His major field of specialisation is Sampling Techniques.

He served I.C.A.R. since 1949 in different capacities. He became Director of the Institute of Agricultural Research Statistics in 1969 and since then he is continuing as its Director. He has published more than 100 scientific papers in the statistical journals in India and abroad. He

is also author of several books on statistics. He has extensively toured in foreign countries. He has several times worked as statistical Expert in Food and Agriculture Organisation of the United Nations. In 1973 he visited USA as visiting Professor and delivered a series of lectures at Ohio State University, Columbus and Georgia State University, Athens. For

the last five years, he has been the Editor of the Journal of Indian Society of Agricultural Statistics. He is, at present Secretary of the Indian Society of Agricultural Statistics. In 1973, he was elected as a member of the International Statistical Institute, Hague. Indian Agricultural Census of 1970-71 was conducted under his technical supervision.

Professor R.P. Singh, President, Section of Chemistry, 63rd Session of the Indian Science Congress was born on the 16th June, 1921, in Kota (Rajasthan), where his father migrated from Uttar Pradesh. He received his early education in Herbert College, Kota and St. John's College, Agra and higher education in the University of Allahabad, having had a uniformly brilliant record.

He is one of the oldest teachers of the University of Delhi, which he joined in March, 1944 as a Lecturer. He was appointed Reader in July, 1960 and is now

occupying the Chair of Inorganic Chemistry in the same institution.

He has established an active school of research in coordination chemistry in the University of Delhi and has published over 170 original papers in national and international journals of repute. His research interest over the past decade has been in the field of solution chemistry and structural chemistry of complex compounds.

On the basis of his long experience of teaching and research, Professor Singh was invited to organise the Science Departments of Tribhuvan University, Kathmandu, in 1964.

Dr. Ajit K. Danda, President, Section of Anthropology & Archaeology, 63rd Indian Science Congress, was born in November 1936 at Dacca which is now in Bangla Desh and had his early school education there. He matriculated from the West Bengal Secondary Education Board in 1953, and had his college education in Calcutta. He earned his M.Sc. degree in Anthropology in 1959 from the University of Calcutta and was placed second in order of merit. His M.Sc. dissertation on the "Socio-economic study of the slum dwellers of Calcutta," was guided by Prof. K.P. Chottopadhyaya and his field investigation on "Material Culture of the oraoon of Chhotanagpur," was conducted under the guidance of Prof. T.C. Das.

In 1960, he joined the Cultural Research Institute of the Government of West Bengal as a Senior Research Assistant and had his first opportunity of coming in close contact with Dr. B.K. Roy Burman and worked under his dynamic leadership. Here he was involved in three major anthropological research projects viz, (i) Codification of customary rules of inheritance of the Santals, (ii) impact of plantation industries on indentured labourers, and (iii) ethnographic studies of west Bengal tribes. In late 1962, Dr. Danda joined the Office of the Registrar General of India, New Delhi, as a Senior Technical Assistant and had his second term of working with Dr. Roy Burman. He continued his interest of working among the plantation labourers, results of which have been published by the Government of India. In 1963, he resigned the job and left for the United

States for higher studies and earned his Ph.D. degree in Cultural Anthropology from Cornell University in 1966, on his dissertation, "Planned Development and Leadership in an Indian Village." At Cornell, his Ph.D. programme was guided by Professors Morris E. Opler, Robert J. Smith and Gordon F. Striob.

On his return to India he joined the National Institute of Community Development, Hyderabad, as a Senior Research Fellow and Deputy Director of the project, "Diffusion of Agricultural Innovations". Here he had the opportunity of working with Dr. Prodipte Roy and Prof. F.C. Fliegal and was responsible for guiding and organising researches of the team working in West Bengal, results of which have already been published by the National Institute of Community Development. The intensive study of a West Bengal village conducted by Dr. and Dr. (Mrs.) Danda was also sponsored and published by the Institute.

In 1968, he joined U.P. Agricultural University at Nainital as a Senior Research Officer and Associate Professor and was responsible for teaching courses in Extension Methods and organizing and guiding researches of the project, "Socio-economic Behaviour of progressive Farmers". On completion of his research assignment he resigned from the job in 1969, to join the Anthropological Survey of India as a Superintending Anthropologist. This provided him with the opportunity of having the colleagueship of Dr. S.C. Sinha and to work under his close academic supervision. As a Superintending Anthropologist Dr. Danda was

responsible for guiding researches of its team that studied Chhatisgarh area of Madhya Pradesh ethnographically. In 1974, Dr. Danda became the Deputy Director of the Survey and since then is working in that capacity. He is one of the coordinators of the project, "Socio-economic changes among the Weaker Sections of Indian population since Independence".

In 1972, he was invited to join the Department of Sociology of Nagpur University as a contributory teacher which he has been attached with since then.

He is a member of the Central Advisory Committee of Scheduled Tribes formed by the Indian Council of Social Science Research. This gave him the opportunity of coming in close contact with Prof. S.C. Dube, the Chairman of the Committee and receive academic guidance from him. His forthcoming study, "Tribal Economics and their Transformations", is being published by the Indian Institute of Advanced Study, Simla, under the general editorship of Prof. Dube. He is also a consultant of the Indian Council of Social Science Research in Anthropology. He was a member of the Central Coordination Committee of Research that was responsible for organization and guidance of the nationwide project, "Educational Problems of Scheduled Caste and Scheduled Tribes," under the sponsorship of the Indian Council of Social Science Research. Presently he is drafting a comprehensive national report, "Educational Problems of Scheduled Tribes in India," reviewing the State reports of the said project.

Prof. F. Ahmad, President, Section of Geology and Geography, 63rd Indian Science Congress, was educated at the Aligarh Muslim University, Aligarh and the University of Tasmania, Hobart, Australia.

He served the Geological Survey of India from 1941 to 1969 and rose to the position of Director. In 1964, he was appointed Professor and Head, Depart-

ment of Geology, Aligarh Muslim University, Aligarh.

As an officer of the Geological Survey of India, Professor Ahmad surveyed the Singrauli Coalfield and parts of the Vindhyan Basin as well as several areas now in Pakistan. He also worked in the Groundwater Division of the Geological Survey of India for a number of years.

He is the author of one book

and over 60 research papers and is internationally known for his contribution to the Theory of Continental Drift and the Documentation of Gondwanaland and geology. He has attended many symposia abroad and was a member of the Indian delegation to International Gondwana Symposium held in Australia from August 20-25, 1973.

Prof. U.S. Srivastava, President, Section of Zoology, Entomology and Fisheries, 63rd Indian Science Congress, was born in 1924 in U.P. He received his School, College and University education in Allahabad. After obtaining the M.Sc. degree in 1943, he joined research in the Zoology Department, Allahabad University under the guidance of the late Dr. D.R. Bhattacharya and received the D. Phil degree in 1947. The same year he joined the staff of Allahabad University as a lecturer, and served as lecturer and Asst. Professor till 1963 when joined the Bihar University, Muzaffarpur as University Professor and Head of the Zoology Department. He also served as the Dean, Faculty of Science in this University from 1965 to 1967.

He rejoined Allahabad University as Professor and Head of the Zoology Department in 1969.

In the meantime, he worked in the Department of Zoology and Entomology, Imperial College of Science and Technology, London as a Commonwealth Universities Interchange Scholar in 1957-58 and in the Department of Biological Sciences, North-western University, Evanston, U. S. A. as a Visiting Professor. He has travelled extensively and visited a large number of Universities and laboratories in Europe, America and Japan and lectured there.

He is an effective and popular teacher and about a score of students have obtained doctorate degrees after working under his

guidance. His main research interest has been in the fields of developmental morphology, Physiology and endocrinology of insects in which he has published about 60 research papers which have received wide and international notice. He is also the author of several books.

He has been the President of the Biological Sciences Section of the National Academy of Sciences India, Vice-President of the Entomological Society of India, General Secretary of the National Academy of Sciences, India, Building Secretary of the Vigyan Parishad, Allahabad and General Secretary of the Zoological Society of India, besides being a Fellow or member of several other learned bodies.

Professor R. P. Singh, President, Section of Physics, 63rd Indian Science Congress, was born in Unnao district of Uttar Pradesh. He has made significant contributions in the field of Statistical Mechanics, Solid State Theory and the Physics of Condensed Matter. He has been interested, particularly, in the study of electronic and vibrational states of solids and the role of electron-electron interaction in highly condensed matter that exists in white dwarf stars. The results of his investigations have been published in leading scientific journals. He has also served on the Board of Editor of scientific journals. He is a life member of the Indian Physics Association and the Indian Science Congress Association. He is a member of the American Physical Society and the Societies of Phi Kappa Phi and Sigma Xi.

He has the distinction of receiving his Bachelor of Science (1943) and Master of Science (1945) degrees with high positions, from the University of Allahabad studying under late Professor Sir K. S. Krishnan, F.R.S. He started his research work with Professor Krishnan and studied crystal magnetism for a couple of years with him till he left the Allahabad University in July 1947 to

take up the Directorship of the newly started National Physical Laboratory. He joined the Department of Physics of University of Allahabad as a Lecturer in July 1947. Since then he has been in the field of higher education in the country.

He left for U. S. A. on study leave in August 1952 and took his Ph.D. in 1955 from the Washington State University working in the field of statistical theories of liquid helium with Professor William Band. He got interested in this area during his inspiring association with Professor D.S. Kothari and his group at the University of Delhi extending over a period of three years from 1949 to 1952. This interest continued to exist while working at the Washington State University and resulted in a Ph.D. thesis and research papers on this subject.

He moved to National Research Council of Canada at Ottawa as a postdoctorate research fellow in September 1955 and joined the well-known theoretical physics group led by Dr. T.Y. Wu. At the National Research Council in Ottawa he also had the inspiring contact with Dr. G. Herzberg who was the Director of the Division of Pure Physics at that time. As a post-

doctorate fellow he spent considerable time working on electron in condensed matter using the famous Bohm-Pines theory of electrons in condensed matter. At Ottawa, he not only had the opportunity to work in exclusive research atmosphere, but also had the fortune to interact with the postdoctorate fellows from several countries. He also had the opportunity to be invited to participate in the International Conference on Electron Transport in Metals and Solids which was held at Ottawa from September 4 to 10, 1956.

He returned to Allahabad University in July 1957 and then after a year moved to the newly started Indian Institute of Technology, Bombay, which he joined on July 4, 1958 as an Assistant Professor. He became a full Professor in 1964 and was the Chairman of Physics Department at I.I.T. Bombay, from its inception in 1958 to 1966. In 1967, he was invited to visit the International Centre for Theoretical Physics at Trieste, Italy as a Lecturer in connection with an International Course on the Theory of Condensed Matter. In 1973 he was placed in the Senior Scale of Professors at I.I.T., Bombay and acted as the Dean of Research and Development

from August 1972 to May 1975. He was the Recorder of the Physics Section of the Indian Science Congress for the Diamond Jubilee Session 1973 and also

for the Session 1974. Professor Singh was the Chairman of the Bombay Chapter of the Indian Physics Association during the years 1973 to 1975 and a member

of the Physics Committee of the Department of Atomic Energy, Government of India for about five years.

Prof. M.C. Chaki, President, Section of Mathematics, 63rd Indian Science Congress, was born at Bogra (now in Bangladesh) and had his College education in Calcutta and Rajshahi. He took his M.A. in Pure Mathematics, Calcutta University in Class I in 1936 and obtained the D.Phil. degree from the same university in 1956. His thesis was examined and highly spoken of by late Prof. L.P. Eisenhart of Princeton, University of U.S.A. Starting his teaching career at Bogra College in July 1939, he joined Bangabasi College, Calcutta in August 1945 and during his tenure of service at Bangabasi College he also served as a Lecturer in the Pure Mathematics Deptt. of Calcutta University. He joined the University of Calcutta as a whole-time lecturer in 1952, continued in that post till August 1960 when he was appointed a Reader and was appointed Sir Asutosh Birth Centenary Professor (formerly named Harding Professor) of Higher Mathe-

matics in August 1972, the post which he now holds. In August 1974 he was appointed Head of the Department.

A research worker of long standing Prof. Chaki has made substantial contributions to the Differential geometry of Riemannian Spaces. His earlier work on harmonic Spaces dealing with the existence of such spaces which are recurrent but not symmetric is significant. His introduction and study of conformally symmetric, conformally 2-recurrent and 2-Ricci-recurrent spaces stimulated much fruitful work in these domains in U.S.S.R., U.S.A., Germany, Poland and Japan.

Author of a large number of research papers, he has been guiding researches mainly in Differential Geometry in which several students got their Doctorate degree working under him. He has also been guiding researches in two other fields namely application of Differential geome-

try to Biology and History of Mathematics and one of his students already got his Ph.D. degree working in the latter field.

He was elected a Fellow of the Royal Astronomical Society, London, in 1957, had been the Editorial Secretary of the Bulletin of the Calcutta Mathematical Society from 1963 to 1970, and has been associated with several learned Societies as a member. He has been a reviewer of the Mathematical Reviews, U.S.A. since 1964 and reviews papers written in five different languages.

He actively participated in the efforts for the improvement of mathematics education and research in India. He presided over deliberations in post-graduate curriculum in Pure Mathematics in the Regional conference on Mathematics and Research (Eastern Region) held under the auspices of the University Grants Commission at Jadavpur University in February 1975.

Professor K.S. Thind, President, Section of Botany, 63rd Indian Science Congress, was born in 1917 in Saidpur (Kapurthala, Punjab); M.Sc. (Hons. School) in 1940, Panjab University, Lahore with first class first position; Government of India Overseas in Scholar in U.S.A. 1945-48, awarded Ph.D. in Plant Pathology by the University of Wisconsin in 1948; Senior Professor (Mycology and Plant Pathology), Panjab University, Chandigarh since 1967; several scholars, who obtained Ph.D. degree under his supervision, now occupy important positions in India and abroad. Actively engaged in the systematic study of fungi (especially Myxomycetes, Pyrenomycetes, Discomycetes, Aphyllophorales, and Gasteromycetes), and the nutrition of pathogenic fungi, with special reference to trace elements. Published more than 130 research

paper in Indian as well as foreign journals of repute, with two monographs entitled "Clavariaceae of India", and "Myxomycetes of India", through I.C.A.R., which have been quoted in research papers, reviews, monographs and other publications of repute both in India and abroad. Principal Investigator of two PL-480 projects for the study of specified fungal flora of North Western Himalays from 1965-1975. contributions of which have been quite productive both in quality and quantity and have received much appreciation.

Elected Fellow of National Academy of Sciences of India, 1958; Fellow of Indian Academy of Sciences, 1960; Fellow of Indian National Science Academy, 1968. Members of Sigma XI, U.S.A., 1948; Member of the Executive Committee of Inter-

national Mycological Society (I.M.A.) for 4 years (1972-76); Member of Executive Committee/Council of several scientific societies in India; Member of the Botany Committee, INSA, 1975-77. Elected President of Indian Phytopathological Society, 1972; President of the Section of Biological Sciences, National Academy of Sciences of India, 1973; President of Indian Botanical Society, 1973; Chaired several sessions of national and international symposia in Mycology and Plant Pathology.

Visiting Research Scholar (Advanced Category) as Full Bright Fellow and Smith Mundt Award in U.S.A. during 1960-61; also visited universities/research institutes in Europe in 1961. Visiting Professor in Bulgaria during 1974 under Indo-Bulgarian Cultural Exchange programme sponsored by the U.G.C.

Role of Technology in National Development

Extracts from the Convocation Address given by
Prof. Nurul Hasan, Union Education Minister at the Indian School of
Mines, Dhanbad.

Knowledge and skills are intended, not merely to satisfy the eternal quest of the human soul, but also to generate, guide and support the efforts needed to promote the welfare of the people which is both their objective and obligation. From this point of view, therefore, I attach the highest significance to the pursuit of equality as a basic human value and to man's ceaseless efforts, in spite of all odds, to provide equality of educational, economic, political and social opportunity to all human beings, irrespective of caste, race, colour, religion or sex. We know that men are unequally endowed and *start* unequal in life. We also realize that they strive unequally and tend to *finish* unequally at the end. We do recognize that there are tremendous prejudices and vested interests in favour of the creation and perpetuation of inequalities and sore temptations to rationalize that some can be 'more equal' than others. And yet, we insist on equality before law. We assure each person that he has equal protection and that he will be judged by the same criteria and treated the same way for his actions as everyone else. We also insist on social equality and assure each person that he will be given the same basic respect as an individual along with all others. We also assure every individual an equal right to participate in production, in the programmes of national development, or in the governance of society. We also hold that every individual has an equal right to a minimum of income and services like education, medical care or social security. I consider this struggle for equality as the best attribute of human civilization, and to me, technology—and in fact, all knowledge—is valuable and useful mainly in so far as it tends to promote equality and to improve the quality of life for all human beings.

Judged from this point of view, the phenomenal development of science and technology in the last two hundred years has been a tremendous blessing. It has created a much better understanding of Nature than we ever had in the past and enabled us to produce an enormous quantity of goods and services which, for the first time in human history, created the *possibility* of making the good and abundant life available to every human being, in every corner of the world. It has also annihilated distances, made the world much smaller and far more compact than it ever was, and linked the life and fate of every person with that of every one else in a manner which could

have hardly been foreseen in the past. It has also created, again for the first time in history, the *possibility* that men can live in this world in peace, in tolerance and respect for others, and in a cooperative spirit of helping and serving one another rather than in mutual envy and distrust, in a life-and-death struggle for possession of scarce goods and services and in continued warfare. I deliberately use the word 'possibility' because, in spite of all improvements made and changes brought about through science and technology, we still have a long, long way to go and the golden age of all men having equal access to a good and abundant life is still a distant dream. On the other hand, some negative aspects of this development have already come to the surface in the meanwhile and have created doubts whether the manner in which science and technology are being used at present will really help us to solve our problems and to create a world order based on peace, plenty, goodwill, equality and justice.

This contradiction between the promise of science and technology and their actual performance arises from the disregard of two important principles. The first is the dialectical relationship between the understanding of nature and interference with it. Every attempt to understand nature, is necessarily an interference with it; and hence no understanding of nature, which enables us to harness it for the production of goods and services, is ever possible without some interference with it and without some deflection in the course which it would otherwise have taken. But interference can be both healthy and unhealthy; and it has therefore often happened that the very attempts to understand nature and to harness it to human welfare have created, not only goods and services in abundance, but severe disturbances in the ecological balance as well. These undesirable consequences are greatly accentuated when the capitalist policies of the developed nations use science and technology to generate mass production for earning profits, and support it by grabbing the resources of the entire world, by promoting unlimited consumerism, and by building up a terrible war-machine of unparalleled destructive capacity. These policies of the developed nations are therefore creating very difficult problems, not only for them, but for the entire world. The first and foremost among these is the deterioration of environment and pollution. The

degradation of the earth's beautiful landscape through indiscriminate mining, felling of trees, soil erosion and destruction of wild life is now, too well-known to need elaboration. Factories discharge effluents, sometimes noxious and always offensive, in rivers, sea and atmosphere. They pollute water and air, endanger aquatic life or make fish inedible or dangerous to eat. Nuclear devices liberate unwanted and harmful amounts of radiation. Particulate matter from factory smoke and automobile blast accumulates in air and leads to smog. Dangerous chemicals accumulate in foodstuffs. Soil structure deteriorates under massive doses of chemical fertilizers. The temperature of air and water continues to rise; and so on.

Far worse are the consequences of waste involved in capitalist mass production, and especially in the indiscriminate use of non-renewable scarce resources like minerals or fossil fuels. The developed countries are now recklessly destroying, in every second, vast wealths which nature took millions of years to produce, regardless of effects it will have on their own lives, or those of the people in the developing countries, and especially careless of its implications to our succeeding generations who will inherit a far more impoverished earth and more highly polluted environment. This use of technology creates social and mental tensions of various kinds: and, as Dr. Zakir Hussain used to say, the plenty *without* is hardly a compensation for the lack of peace *within*. What is even worse, these policies have not only *not* promoted equality, but have actually made the rich nations richer, and the poor, poorer and increased the rivalries between the big powers to dominate the world situation. This in its turn, had led to an increase in international tensions. Consequently, there has been a great armaments race and a huge stock-piling of nuclear weapons which has made the future of man hang on the brink of a precipice.

Very naturally, these maladies are now receiving serious attention of several thinkers in all parts of the world and a variety of solutions are being proposed. Some particularly in the West, suggest that the pursuit of science and technology itself should be abandoned. Others would not like to throw the baby out with the bathwater. They emphasize the point that the evils that have now come to the surface are not inherent in science and technology, but in their capitalist and imperialist use, in the promotion of unbridled consumerism to which they have been unnecessarily linked, and in the failure to subordinate the use of science and technology to social, moral and ethical criteria. According to this school of thinkers, therefore, the remedy lies in reversing the policies which have created the present situation. The developed countries will have to curb their consumerism. Science and technology will have to be used, not to increase inter—and intranational inequalities, but to promote equality, both within and between nations. Capitalism and production for profit have hardly any place in the new world order that we need, and the principles of socialism and of

producing for social good will have to be universally adopted. Above all, science and technology will have to be used in a humane fashion not as ends in themselves, but as instruments to promote human welfare and justice in accordance with social, and ethical values. I hope that the developed countries will soon adopt these new policies which are, not only in their own interest, but also in the interest of the entire world. I even look forward to some of the developing countries providing a leadership in these new tasks.

What I have said so far about the development of science and technology and its human use for improving the quality of life on earth applies mostly to the developed countries. But the case of the developing countries is entirely different and several special aspects of the problem need elucidation from their point of view. It is to these that I shall briefly refer, especially in the context of our own situation.

The emphasis on equality to which I referred a short while ago as basic to the quality of life is even more true in our country. We have hierarchical and inegalitarian social order which has developed over centuries and we must now ensure that we use all the powerful resources of science and technology, not to strengthen or perpetuate the *status-quo*, but create a new social order based on justice, equality, freedom and the dignity of the individual. This has to be the principal objective of our science and technology policy as of everything else.

It must also be pointed out that the vast bulk of our people are very poor and live below the poverty line. There is some scope for placing curbs on the consumerism of our well-to-do sections who are imitating this weakness of the West. But taking the nation as a whole, we have an urgent need to produce more and to increase the present low levels of consumption very substantially. Poverty is the greatest pollutant in India. What we need therefore is not less science and an inferior technology as some of our friends from the developed countries would seem to advise, but more science and more sophisticated and advanced technology. Let it not be forgotten that our society has continued to be hierarchical and poor for all these centuries, partly because of our failure to develop a technology of a sufficiently high order, and partly because of a general callousness to the sufferings of the poor. That is why the best solution to the problems of our poverty was given by two of our great national leaders. Mahatma Gandhi taught us that the highest priority in India is to eradicate poverty and that our performance in this regard should be judged by what we do for the lowliest of the low—*Antyodaya*. In fact, his talisman for deciding the worthwhileness of all developmental policies was both simple and effective. "Think", he said, "of the poorest man you have ever seen or known; and when deciding upon any action or policy, ask yourself how your proposed action or policy will benefit him". Pandit Jawaharlal Nehru showed how this goal of 'wiping

every tear from every eye' which was so dear to the heart of the Mahatma could be actually achieved in practice. He said, "It is science alone that can solve the problem of hunger and poverty, of sanitation and illiteracy, of superstition and deadening customs and traditions, of vast resources running to waste, of a rich country inhibited by starving people".

In the post-independence period, we have followed this advice only partially. Under the leadership provided by Pandit Jawaharlal Nehru, we have expanded and improved the teaching of science in the universities on an unprecedented scale and given great fillip to research. There has also been a tremendous expansion and immense qualitative improvement in higher education in agriculture, engineering and medicine. Our stock of high level trained man-power in science and technology is now the third largest in the world and has made a significant contribution to national development as evidenced by the green revolution, the growth of the modern industrial sector, and improvement in health. While this is something to be proud of, our policies do need some modification in two respects. Firstly, our choice of technology was often unhappy and dictated more by external interests rather than by our own national concerns. In a hurry to develop indigenous production by substitution of imports, we relied too heavily on foreign collaboration and a higher priority was often accorded to the luxury consumption of the well-to-do rather than to the basic needs of the masses. An unsuitable foreign technology was often imported, and sometimes repeatedly, when a more appropriate indigenous technology was available or could have been developed. It is a happy sign that these errors of the past are now recognized and new and more appropriate policies are being adopted. But it is still necessary to reiterate, from every platform possible, that in adopting technologies for industrial growth, we must lay stress on those which tend to reduce inequalities and to promote self-reliance. We should not be misled by the interested propaganda of external agencies who desire to sell a technology to their own advantage. Instead, we should choose a technology advanced, intermediate, or even primitive—which is in our own interest from every point of view. Each such decision has to be a national decision in the best interests of the people.

The second modification needed in our policies and programmes relates to priorities in research. While distributing the Bhatnagar awards for scientific research, our Prime Minister drew pointed attention to the fact that the research we undertook was not always as closely related to the priority areas which could ameliorate the conditions of living for large numbers of people, as one could wish. She therefore suggested that we must direct our researches more pointedly and extensively to such problems as "the use of solar energy and other replenishable

energy sources, the development of techniques which will lessen the drudgery of our people, innovation in pumping water from the wells, improving lift irrigation systems, improving the efficiency of the bullock cart which even today carries more goods over short distances than our railways and road transport put together, environmental cleanliness, reduction of pollution, the eradication of communicable diseases and research in family planning." This is the direction in which we have to move in the years ahead.

I referred to the inevitable interference which results when we try to understand Nature. We can, therefore, obtain the best results from our efforts to understand nature, and minimize the consequences of interference, if there is a proper balance between fundamental and applied research, between the training of young scientists and technicians capable of handling the problems that will arise in the future and the utilization of our existing capacity to solve the problems of the moment, and also between research in different sectors like the physical sciences, life sciences, earth sciences and technology.

While I shall yield to none in my emphasis on the pursuit of science and technology for finding solutions to our most pressing problems, I would also like to emphasize the unbroken continuity of knowledge which must also include humanities and social sciences which should really be developed to promote individual and social welfare. We do need technical competence in science and technology because, without it, we will not be able to understand Nature, or to use such understanding to promote human welfare. But mere academic expertise in science and technology is not enough. The social sciences and humanities and ultimately, our moral and ethical values, will have to assist in defying the goals of development, to lay down priorities, to enable us to choose between alternative and competing technologies, to evaluate the progress made from time to time in social and human terms, and generally to indicate the manner in which the services of science and technology can be best harnessed for improving the quality of life in all its aspects. These are essentially social and political decisions. But in taking and implementing them, interdisciplinary approaches to the solution of our pressing problems will be of help; and this is why we emphasize the study of humanities and social science even in scientific and technology education.

If we are to succeed in the difficult struggle to abolish poverty, ignorance and disease, we need, more science and better technology, which is geared to our peculiar national needs, is subject to the social, moral and ethical values which we cherish and desire to propagate, and is directed to improving the life of the common man and reducing inequalities.



Educational Reforms In The Agricultural Universities

G. Rangaswami

At the meeting of the Vice-Chancellors of all the Universities in India held in New Delhi in September 1975, under the auspices of the University Grants Commission and the Union Ministry of Education, several important issues pertaining to curricular changes, improvements to teaching methods and examination reforms were discussed. While it was stated that 32 General Universities are in different stages of introducing semester system, most others were finding it difficult to straightway implement such reforms. Over the past one century and more, higher education in India has expanded and spread in many directions and to-day we find it rather difficult to collect the system before we could reorganise it to meet with the growing and more exacting demands of the nation. It would perhaps be impossible to arrive at a uniform pattern of educational system in such a vast country like ours, nor it would be desirable to aim at such a 'less meaningful, uniformity. However, it would certainly be advisable to learn from the experience of other institutions in the world and also our own institutions within the country. I shall attempt to briefly summarise the various reforms implemented in the Agricultural Universities in India.

There are 102 Universities and 9 deemed Universities in India. Of these 20 Universities and one deemed University are classified as Technical-Agricultural Universities. The twenty Agricultural Universities have been set up in the country over the past 15 years, and most of them inherited the traditional Agricultural and Veterinary Colleges which were earlier affiliated to the General Universities in the respective States. The autonomy given to these institutions has helped them to successfully implement the various educational reforms detailed here. In this context I wish to emphasise that the Agricultural Universities in India have been set up to bring benefits to the farming community. They have the triple function of teaching, research and extension education programmes, carried out in an integrated manner, covering all branches of agriculture and in its broad definition, including crops production, horticulture, animal production, veterinary medicine, fisheries, forestry, home science, agricultural engineering, agricultural economics, marketing and co-operation, and the related basic sciences and humanities. Thus, Agricultural Uni-

versities are rural oriented and need-based institutions and function in a manner to solve the problems of the farmers and to bring lasting benefits to them. Therefore, the educational programmes in these Universities have been moulded to meet with these requirements.

1. The academic calendar is restructured into Trimesters Semesters instead of three terms and the intervening and terminal summer vacations; the vacations under the new system are shorter. As against the optimum of 180 working days in a year, under the Trimester Semester system the students have to study for 210 days consisting of 70 days per trimester or 105 days per semester. The subject matter taught is broken into convenient units to fit into the limited duration of 70 or 105 working days. Within this duration, the time spent on each subject varies depending on the nature of the course and the weightage given to the subject, which is measured in terms of "credit hours". In a one-credit course, the student attends one hour lecture or three hours of practical in the subject.

In a three credit course, it may be (i) three hours of lecture, (ii) one hour of lecture plus six hours of practical, (iii) two hours of lecture and three hours of practical or (iv) nine hours of practical per week. Thus, the intensity of teaching programme of a subject under the course varies. A candidate will have to obtain certain total credit hours of work to become eligible for a degree. In a Trimester system a candidate for B.Sc.(Ag.) degree will have to secure passing grades attending a total of 192 credit hours. The quantum of studies he has to undergo over a period of four years is fixed, but the subject matter for his studies may vary considerably. The flexibility in this regard provides for satisfying his inquisitiveness and special interest in any one branch of agriculture. For example, if a person is specially oriented in carrying out studies on Soil Science, he can select specialised advanced courses in this field during the final year of the four or five year degree programme. This system also provides for frequent updating of the subject matter taught and for introduction of newer courses from time to time to meet with changing needs of situation. Several new courses such as Rural Sociology, Human Nutrition, Animal Production and Extension Methodology have been incorporated in the new curriculum of the under-

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graduate classes in the Agricultural Universities in India.

2. There are several recommendations made in the past in the country to eliminate the annual university examinations. Under this Trimester/Semester system the annual university examination has been completely eliminated. The students' capacity to learn is continuously assessed through four examinations conducted over a period of 70 days in a Trimester. These consist of un-announced quiz, announced quiz, mid-term tests and final tests carrying 20, 15, 20 and 30 per cent of marks. The first three examinations carry objective types of questions and the last may carry both objective and essay types of questions. The questions are designed very accurately and they carry specific weightage of marks for evaluation of the answers given by the students. The remaining 15 per cent of marks are divided equally (i) for regular attendance, (ii) regularity in submission of records and behaviour of the students in class and (iii) the quality of the records and term papers submitted by the students pertaining to the subject. These are incentive for the student to discipline himself in the classroom and outside. The most important aspect of the system is that all the four examinations in the subject in a Trimester are University examinations conducted by the teacher who teaches the subject. After the examination, the answer books are evaluated by the teacher and he is obliged to return the answer books to the students within the next few days, generally in the following class of the same subject, and give the correct answers for each question. The answer books have to be necessarily returned in the classroom and not outside. This gives an opportunity to the student to re-learn the subject as also check-verify the correctness of the evaluations of answer book by the teacher. If any mistake is noted in the evaluation of the answer book, the student gets it corrected to his advantage in the classroom. This also makes the teacher more careful in evaluating the answer book. There is no provision for such an interaction between the student and the examiner in the traditional annual examinations conducted by the University, whereas in the present case the teacher utilises the examination as a method of teaching and also instil in the student mind about the fairness of his assessment.

Wherever the students do not obtain the required minimum of marks, they are placed on probation and are advised, and often regulated through rules, to cut down the work load by registering for a lesser number of courses in a Trimester so that they could concentrate more on a limited numbers of courses and obtain better grades in the examinations. This helps them to make up their deficiency, though they may have to spend one or two Trimesters more in the college to obtain the Degree. Under this system, the teacher comes to know of the student more intimately and also the student gains profuse confidence in the teacher and hence approaches him for frequent counsel.

3. The teacher who teaches the subject in an Agricultural University is obliged to carry out research work and a research worker in the Research Station attached to the University camps is also obliged to offer Trimester/Semester courses to the students in his own field of specialisation. This brings in better quality teaching as also more intimate link-up, between the research worker, teacher and student community. The research worker in turn is involved in extending his research findings to the farmers' fields not only to test verify the results for their suitability for adoption by the farmers, but in doing so learns about the farmers' field problems. In this process the research carried out by the University staff, individually and collectively, gets oriented towards solving the problems of the farmer, which in turn reflects in the teaching programme of the Colleges of the University. For example, if there is an outbreak of a new crop disease in a tract, the research worker is called upon to find solutions to the problem and when he finds solution to the problem, he not only informs the farmer of the finding, but also incorporates the knowledge gained by him while he teaches the students in the class room. This method of the updating of the teaching programme, tackling the day to day problems the farmers and other interactions between the farming community, teacher and the students go on continuously in the Agricultural Universities.

Most of 20 Agricultural Universities in India have taken to such an integrated programme and have achieved varying degrees of success. In the Tamil Nadu Agricultural University we have adopted the Trimester System from the academic year 1972-73 in the under-graduate and post-graduate programmes in the two Agricultural Colleges at Coimbatore and Madurai and in the college of Agricultural Engineering and in all the post-graduate programmes leading to the Masters' and Doctoral degrees and this is the fourth year of its successful functioning.

This system could be more readily implemented in the unitary Universities than in the affiliating ones. Where the responsibility for day to day academic administration rests with Government or private organizations it would be rather difficult to implement the academic and administrative reforms involving such an intensive teaching-cum-examination system. However, it should be possible to implement such a system in the autonomous Colleges under the affiliating Universities, if the well-earned autonomy does not lead to 'over-confidence' and consequent 'dilution of academic standards'. What is important in these reforms is that the interest of the student community should be safeguarded and the aspiration of nation to serve the rural areas and the downtrodden be reflected in the curriculum, fully taking into account that the higher educational programme is meant for moulding the future of the country and not for merely producing a large number of arts and science graduates. □

THE cultural progress of man can be traced through his ability to discover and use new sources of energy. To begin with, muscle power, at first his own and later of his slaves and animals. In due course he discovered fossil fuels which placed before him diverse and abundant energy resources. This discovery, coupled with the ideas and products of the Industrial Revolution, brought with it a change in the machines and devices to harness it. That fossil fuels, though available in large quantities, are actually depletable capital reserves does not appear to have been realised till recently.

With the advance of technology, the demand on energy resources increased rapidly. However, during this period of technological progress, of a century or so, man was also able to augment his capital reserves to a large extent. First there was coal, then came oil and after oil, uranium. It is envisaged that in due course thorium can also be used, to be followed later by fusion.

The present energy crisis underscores mainly two points :

- (i) the depletable of capital reserves, however large they are in extent,
- (ii) the unique position liquid fuels occupy in present-day technology.

When we look for conservation of our energy resources, and for new vistas in energy utilisation, these two points should not be lost sight of. It looks as though after a short spell of enjoying capital reserves of fuel, we may be compelled to once again go back to "income" sources of energy. And, when we look for income sources of energy, the only major source that comes to mind is direct solar energy.

Unfortunately, left to himself, man is not much of a disciplined being. This is one reason why the classical *laissez faire* theory never appealed to serious minded economists. Smithsonian economics and the other classical theories did not take into account the behavioural aspects of man. It is now being increasingly realised that the study of the behavioural history of communities is also necessary for planning the economy.

The current energy crisis is a typical example to illustrate why economic activity needs control and regulation. Though every nation controls its economic activities to a greater or lesser extent, in the international sphere it is the *laissez faire* situation that is prevailing. The result is that there is no control on the exploitation of natural resources. The advanced countries are the main defaulters in this respect. A solution to this problem could be found in a kind of international regulation through international monetary agencies on the utilisation of the world's natural resources. This of course would call for a high degree of self-discipline, restraint and a spirit of give and take on the part of exporting and consuming countries.

In trying to formulate economic policies and assess their effects, especially in developing countries,

classical economic theories are not of much help. It is also not possible to spur economic activity through a set of standard economic measures alone. There are psychological factors like the outlook, will to produce, self-confidence and trust, which are essential for economic progress. It is not unusual, especially in the developing countries, to criticise certain projects as wasteful without understanding that there are projects which have a role in boosting the morale of the people. To quote an extreme example, the Taj Mahal could be viewed by many as a wasteful project of an emperor. No one has tried to analyse its role as a morale booster for the subsequent generation. Productive ventures of course should get priority, but the invisible benefit flowing from projects which are morale boosters should not be underestimated. They have their own distinctive historical

Role of Nuclear Energy In India

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role to play in bringing about the right behavioural situations.

While planning for growth, a point to be considered in the case of developing countries is that it may not be sufficient if the focus is on the central station concept alone. Life continues to be, by and large, in isolated villages and there is no reason why this set-up should be disturbed.

Growth and development are usually directly correlated. To Asian economies, such correlations are not always relevant. Growth achieved at the cost of social justice cannot be reckoned as growth in the right direction. Certainly, in a developing economy, it has to be ensured that pockets of affluence due to unequal distribution of wealth are not created. Qualitative assessment of the use of resources for production of essential commodities have to be made. Hence, overall assessments based on gross additions to the GNP but giving importance to the secondaries over the primaries do not give a correct picture of the state of affairs.

A question often asked is why development in the Asian context is measured in terms of the West. Each country has to evolve its own measure of progress which is determined not only in terms of goods produced, but also on sociological, cultural and

ethical patterns. Increasing output will not necessarily mean that it will filter down to the poverty-affected masses. Social needs and assessment based on a desirable minimum have to be the criteria in the design of production priorities.

An Illusory Pursuit

Ours is a world with finite resources. There is always this deep concern in the minds of people about the widening gap between the rich and the poor within the country as well as between rich and poor nations. Instead of narrowing down this gap it is found that inequalities are only increasing with time. Many countries try to catch up with the advanced countries. This 'catching up' approach on the developing countries for reducing the gap can only be termed as an illusory pursuit. Expectations fail to fructify and when this happens, psychological barriers are created in the minds of people and the feeling creeps in that they are fated to a state of eternal backwardness.

During the last two decades, the increase in *per capita* income of developing countries as a whole has been less than \$1 per year. The difference in the average *per capita* income of developed and developing countries in 1970 was US \$2,500. This is expected to increase to \$3,220 by 1980. According to another projection, the present 1:40 ratio between the *per capita* income of India and USA is likely to be 1:80 by 1980. It has been calculated that the increase in the *per capita* GNP of USA in one year is equal to the increase that India may be able to manage in 100 years. These estimates are staggering. But they are real and are indicative of the acceleration of trends that have been evident over the past two decades.

The world's population is expected to double itself in the next 35 years. Constraints on food and water supply can be expected even before this happens. The majority of the present inhabitants of the world being ill-housed, poor and hungry, to provide appropriate living conditions for the new arrivals, our starting base line is really much below the normal world average level. As it is, in the poor regions, the increase in population is already rapid and decline in fertility to any significant degree is not expected without substantial improvement and uplift in the social setting. During 1974, the developed nations spent about 210 billion dollars per year on armaments. The total assistance to the developing countries during the year was between 10-15 billion dollars. The poor countries are adversely affected even in the mobilisation of the world resources which are at present exclusively directed to the benefit of the well-to-do. Even the protein exchange between the two is negatively balanced and applies to the detriment of the poor nations. There seem to be something radically wrong to have such things happen. Many examples of such anomalies can be quoted. At a time when there is a great demand for fish meal to feed the poor, most of the ocean catch seems to be getting diverted to the developed regions. What is the solution to this kind of

situation? It appears that international organisations should assume greater responsibility to ensure that adequate food resources are created and that energy and water are not only conserved but also that their development and utilisation are carried out in the most equitable manner.

Though certain varying factors affecting the life style of the people in the developing countries have been projected in the preceding pages, the fact still remains that energy is the focus of the development of man. His ingenuity has to continue to play a vital role in meeting the energy demand of the future.

In all the Asian countries, with the exception of one or two, there is a great gap between demand and production of energy from domestic reserves even after taking into account what is possible. How can this wide deficit be met? Clearly, nuclear energy will have a role to play in such a situation.

To assess the gap in the energy requirement, and to determine the role of nuclear energy in closing the gap, it is necessary to fix targets which it is desired to achieve. Since there is no known absolute criteria to decide such an issue, one has to make certain assumptions in setting out this goal. One extreme way of looking at it is to hope for a target achievement of consumption as that of North America. Alternatively, one could set the Western Europe average, or the world average as the goal. For the purpose of this article, it may be assumed that the developing countries need a *per capita* energy consumption of about 4 tonnes of coal equivalent, i.e. of 32 MWh energy *per capita*, per annum, which was the Western Europe's *per capita* average for 1972. It is to be noted that the present level in Western Europe is much above this figure already. Even though the target of *per capita* energy requirement is put at 4 tonnes of coal equivalent, it is based on 1972 population figures. By the time actual increase in energy production takes place, the population would have increased considerably. For example, by the year 2000 it is expected that the population would almost be double the 1972 figure, which means that the *per capita* energy requirement of 4 tonnes set now would effectively be only about 2 tonnes coal equivalent. This is the present world average.

Uranium Resources

It is of interest to have a look at the uranium resources in the Asian region. India, Japan and Turkey have identified uranium resources, with India having the maximum. But even India's reserves of uranium are only marginal. It is quite possible that some countries like Malaysia, Indonesia, Burma and Thailand may not have been surveyed in detail for their uranium resources. Therefore, the general assessments made now may need to be corrected in the future.

In the middle 60s' the position of uranium resources was discussed in detail and the available resources were assessed at prices up to \$66 per kg.

of U_3O_8 . Subsequently, assessments were made upto \$220 per kg. of U_3O_8 and in some cases even upto \$1,100 per kg. These assumptions have been made to indicate that nuclear reactors, being highly capital-intensive, the sensitivity of fuel costs even up to high cost of uranium is not critical when compared with power producing plants based on fossil fuels. It has been calculated that in the case of light water reactors the bus bar costs would change only by about 1 mil. per KWh if the price of uranium is increased from \$22 per kg. to \$66. The increase would change only by 5 mil. if the price is stretched upto \$220 per kg. of U_3O_8 . In the case of breeder reactors, the picture will still not be quantitatively different. It shows that price increase of uranium is comparatively little felt in the bus bar costs.

Power Potential in India

As a rule of thumb, it is assumed that 25 per cent of the primary energy is used for domestic and commercial needs, 25 per cent for industry, 25 per cent for transportation and 25 per cent for generation of electricity (gross). Based on a minimum energy demand of 32 MWh *per capita* per annum in the context of our discussion, it can be assessed that 8 MWh are required for generation of electricity. This has to be contributed by all sources of electrical production including nuclear energy.

In India, the hydel potential for power generation is estimated at 41,000 MW, of which 6,400 MW were operating in 1970. These sources are located remote from industrial areas and many of the rivers are monsoon dependent. Even assuming that hydel resources are tapped fully and used in the most efficient manner, still the maximum power availability from these sources is only about 560 KWh *per capita* per annum. This figure, though higher than the present *per capita* production from all sources, is very much lower than the projected demands. The coal and lignite reserves are assessed at 107 billion tonnes coal equivalent. It has been shown that the contribution from these sources is only about 15 MWh, assuming 100 years as the basis of exhaustion. Of this, only 50 per cent is expected to go into electric power generation; i.e. equivalent of only 7.5 MWh. But this means a production of 1,000 million tonnes per annum which is more than 10 times the existing production. A realistic basis would be to assume a maximum coal production target of about 200 million tonnes per annum, which means that the contribution to the electrical demand could be about 1.5 MWh thermal only. It has already been seen that the power production potential from existing oil-reserves is negligible though there are hopes of a much greater contribution from oil in the days to come. Thus, a total maximum possible from all these sources seems to be less than 3 MWh. Even if we assume a 400 million tonnes annual coal production, it will still not exceed a total figure of 4 MWh from all sources. This leaves a deficit of 4-5 MWh to be filled by other sources of energy for electrical production. The magnitude

of the problem come to focus when we realise that to make up the 4 MWh *per capita* deficit (equivalent to about 1.2 MWh *per capita* actual electrical production) it is necessary to have an installed capacity of about 12,000 MWe. This is quite a high capacity to be achieved. To add to this one has to remember that the population increase per annum is about 13-15. This highlights the fact how great a problem the developing countries are faced with in meeting even a tolerably basic energy demand.

Our uranium reserves, though small, are an important factor to trigger our fuel breeding cycle which alone can harness the vast thorium reserves. Taking these aspects into consideration, India's nuclear programme is planned in three phases. At present we are constructing and operating natural uranium fuelled heavy water moderated and cooled reactors. One reactor is already in operation and five more are at various stages of construction in Rajasthan, Kalpakkam (near Madras) and Narora (Uttar Pradesh). The natural uranium system was chosen, as in that case we would not need the sophisticated enrichment facilities. In fact the wisdom of India choosing the heavy water system stands vindicated by the developments in other countries.

The Indian nuclear programme envisages that the plutonium from the spent fuel of the thermal neutron reactors will be used to operate fast neutron breeder reactors which while producing power will also enable the conversion of thorium into fissile U^{235} .

Ultimate Stage

The technological development of fast neutron reactors has not been as fast as one would wish it to be. Nevertheless, it is believed that in about 10 years or so we will be successfully operating our first fast breeder system.

In the third and ultimate stage of the nuclear power programme it is proposed to operate breeder reactors based on U^{233} which will convert more thorium into U^{235} .

It is very important to note that once the fast breeder programme is initiated, the growth rate is governed by the plutonium inventory available at the start of the programme, no matter how large the thorium resources are. This underscores the point that our present thermal neutron reactor programme, which is also intended to build up a sufficiently large plutonium inventory, should not be dictated solely by *laissez faire* considerations.

Serious thinking has to be given by the world community to explore the possibilities of increasing the energy output in the countries where natural resources do not exist substantially. It is quite possible that vast areas in these countries may still require to be surveyed further to find out what their true resource potential is.

Questions are being asked whether nuclear power is really the answer for meeting the short, medium and long range needs of any country. Since the oil

crisis in late 1973, a potential of about 35 billion barrels of oil has been found, according to one estimate. The important point to note is that this is based on 18 months of exploration only.

Protagonists of nuclear power contend that nuclear energy is cheaper than power produced from oil at current prices and that it is not tied up with oil locales. Uranium, being more widely found is, according to them, a preferred raw material. Also, for the ultimate development of thermo-nuclear fusion, thermal reactor development is considered necessary.

As against this, the question of nuclear risks and waste management, large inputs of capital and other factors are raised by the opposing school. Between now and early 1990's it is expected that one and a half trillion dollars will be spent if all the present nuclear programmes of the developed countries are to be fulfilled. Nuclear stations are becoming increasingly costlier i.e. upto 5 times when compared to those ordered six years back. The cost of uranium has almost tripled during the last two years, and though this accounts for a small

fraction of the energy cost, the fear is that its availability will be a restrictive factor in the long run.

The fast breeder technology, of course, is projected as a hope for reducing the cost of electricity produced from nuclear sources. But these are projected over the year 1985 and afterwards for large scale commercial applications. It is not possible to predict what would be the cost of energy then. Developed countries have spent billions of dollars on the fast breeder R & D, and still more will be required by the time commercial operations become feasible. From a safety and long term radio-active waste management points of view also, fast breeders have been under critical scrutiny.

The major hope lies in the development of thermo-nuclear fusion as early as possible because of its immense potential and safety. The commercial exploitation of fusion seems possible only in the next century. If a strategy can be developed such that the future needs of man's energy in both developed and developing nations can be met by fusion and other vital sources of energy such as solar energy, then there is some hope for the large under privileged population in the Asian region.

(Contd. from page 3)

absence of a proper identity rooted in the soil, research is only puzzle-solving and not problem-solving. Ph D. theses are pursued for all considerations other than social relevance. Even when the collective competence of the nation identifies some areas of urgent research, the same do not appeal to the highly individualistic and self-centered researchers in the universities and the laboratories. It is possible that Indian science is vaguely aware of its guilt. Otherwise how would one explain the occasional and amateurish public relations pitch on the findings of this research or the generation of that know-how.

Unless an organised effort is made to give Indian science a proper identity, further expenditure would be only a disinvestment. The task must begin with three objectives, namely: (i) science must be demystified and freed from professionalism; (ii) it must find a place in the larger culture of the people; and (iii) accent must be on cooperative efforts rather than on fierce competition.

When we talk of 'taking science to the village' we begin by clarifying that science already 'exists' in the village. Science is after all a methodology, a way of acting upon and understanding this world. It is not an external agent to be 'gifted' by scientist to the illiterate peasant. What is required is to mobilize the village life so that scientific method and knowledge become tools in the hands of the villagers to act upon their productive processes, their environment, their problems of food, education, health and shelter. In this new role of science the style of operation would depend on cooperation and not on competitive individualism; would consider both professionals and para-professionals as equal partners who would be engaged in problem-solving methods of research and transform the primitive technology

in the village through successive stages of involvement and improvement. It would draw heavily upon the human and material resource endowment of the village. In short, it will lead to maximum self-sufficiency of the peasant community.

In the teaching of science a totally new innovative method must be tried. It can no longer be a body of unrelated knowledge transferred by a 'trained' teacher to the village people. It would be a quest for knowledge gathered through group effort in solving problems in the village: problems of farming, health, rural industry, community living, methodology of teaching and transfer of technology. Science would no longer be taught exclusively in the classroom or laboratory. The life around a person would be a viable setting for the teaching of science. New type of museums which are not imitations of the existing ones would be powerful additional tools. The mass media with new software would be another important aid. But most of all, the teaching of science will aim for both the children as well as the adults. Indeed this collective self-study of life experienced by learner groups would generate new educational order and new teachers who may well prove to be more effective than the traditional teachers.

The virtue of the above method lies mainly in the fact that it depends on the mobilization of the people and in generating their consciousness. It would not make them dependent and wait for a new social order to be created by an external agency. After all a great society is never built first and enjoyed later. It is to be built every day and enjoyed while it is being built. Taking science to the village through this mobilization will discover science that already exists in the village and employ science in widening the mass cultural base.

Technical Studies in Flux

M. V. Rajagopal

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WHEN Macaulay's note led to the replacement of the oriental 'Pathshalas' and 'Madarasas' by schools of Western learning, there was no appreciable difference in regard to one important component of education namely, the quantum of science in the curriculum. While science was conspicuous by its absence in the oriental tradition, the new schools hardly taught any science. The emphasis was heavily on an academic and literary curriculum, largely dictated by the then strong classical tradition of learning, ruling the grammar schools, public schools and older universities of Britain. This lack of science education in our schools survived even into the post-independent days, because even as late as 1970, there were quite a few States in India where science education was still almost totally absent from the school curriculum and it was uniformly weak in the systems of even the other States. Even such science as was being taught in the schools was largely historical and descriptive in character rather than designed to create in the students the scientific attitude and temper. It was this comparatively ill-developed scientific aspect of our educational system that made the Kothari Commission (1964-66) lay stress on science as the basic component of education at all levels. They observed that the close interlocking and inter-dependence between science and technology is a characteristic of the contemporary world.

While the state of science in our education stood thus, we were in the meanwhile overtaken by the rapid growth of science and technology, the result being that science proliferated and grew in such variety and volume that the application of its findings to the growth of human society, particularly on the industrial and economic front, resulted in the need for a system of education basically scientific and increasingly technology oriented. The growth and pattern of technological education in the West, particularly in Germany, America and England was far different. As far back as the early years of the 19th century technical schools were started in Germany for meeting the demands of trained man-power needs of the industrial society which was fast emerging as a consequence of the industrial revolution. The industrial schools in course of time developed into colleges of advanced technology. They did not, however come into the main stream of Higher Education because somehow technical education was resisted by the universities dominated by the classical tradition. Even though they had engineering faculties, nevertheless, their total attitude to technological education was not forward looking. This also changed in course of time and in the years that followed the Second World War, more particularly the 60's and 70's, technological universities have come up in the countries of the West. The Massachusetts and California Institutes of Technology are really multi-faculty technological Universities. So are the Universities of Brunel and Strathclyde in Britain.

In India a uni-faculty Engineering University was established at Roorke as early as 1949. It has now

developed into a good university with well developed Departments in conventional branches of Engineering. However, the engineering college itself, as an institution has been much older and every university in India has on its campus or affiliated to it an engineering college. Some of the older colleges of engineering are the Thomason Engineering College in the North and the Guindy Engineering College in South. These engineering colleges were, however, almost entirely isolated from the Departments of Basic Sciences, Social Sciences and Humanities except for the rather recent phenomenon of teachers from those faculties coming for isolated hours of work in the engineering colleges. The six Indian Institutes of Technology started, in different parts of the country with foreign collaboration, however, changed the picture of technological education in the country so significantly that in 1970 a seminar conducted by the All India Council for Technical Education made the categorical recommendation that technological universities with a multifaculty character should be established in each State. Andhra Pradesh was the first State to establish such a University in 1972. Tamil Nadu has finalised the draft of a Bill to establish a university, multifaculty University of Science and Technology in the State with the Engineering College at Guindy and the A.C. College of Technology as its nucleus.

The engineering faculties in general universities have more or less functioned in a conventional manner and been largely confined to the traditional branches of engineering such as electrical, mechanical and civil. The curriculum for the first degree courses in most of these universities is outdated by at least 20 to 30 years. The inter-disciplinary, multi-disciplinary approach which is a peremptory demand of technological education remains largely unattempted except in the IITs, and the Birla Institute at Pilani. So far as India is concerned it is yet to be fully realised that engineering education as a single faculty education is out-dated. The closest link between technology and other faculties like the basic sciences, social sciences, management disciplines, Humanities and Languages has to be emphasised. The J.N. Technological University intends to restructure itself academically so as to make it a strong multi-faculty university, with of course, the main focus on technology. The proposed Tamil Nadu University of Science and Technology referred to above is expected to be structured similarly. The academic objective of such a multi-faculty approach is that the technology graduate of the future should not be a narrow specialist, not a mere engineer but a fully educated person in the most integrated sense of the term and one who can continuously acquire and adopt the skills necessary for a world in which change and growth are the categorical imperatives.

Another charge against our present engineering education is that it is far too academic and white

collar oriented. How can the academic nature of our engineering degrees and their tendency to produce white-collar engineers be corrected? White-collar engineers are even now the concrete homage of our universities to the values of our society which prizes more an engineer than a mechanic or a foreman. No wonder the Kothari Commission ruefully observed more than 10 years ago that the proportion between engineers and technicians was 1:1.25 whereas in most industrially advanced countries it was 1:4 or 5. Hence, the studied almost deliberate isolation of engineering colleges from industries where machines change and frequently production patterns change and the young engineer from the university begins his engineering education on the job rather than applies his acquired knowledge and skills. The absence of research in technological institutions and universities has had a bad effect even on the pattern of our technological growth because we have gone to the extent of importing foreign technology lock, stock and barrel. In most of our public sector undertakings the tendency to import 'turn-key projects' has grown to the detriment of the growth of an indigenous technology. This obviously calls for a continuous project of activity analysis by our present, proposed and future technological universities. The J.N. Technological University in collaboration with the Applied Man-Power Research Institute has done very valuable work in this regard and this activity has been given a place in the very Constitution of the University as one of its declared aims and objectives.

Technological education is and will continue to be very expensive as contrasted with general education where the ease with which an arts or science college can be set up has swamped the country with thousands of sub-standard institutions. A Technological university is so expensive that, even assuming that the Central and State governments will be generous in their assistance, it would not be enough. The hard lesson we have to draw is that ultimately an Institute of Technological Education has to fund its own growth. This can be done by the technological institutions cashing on their skills and expertise through a well-conceived consultancy service. Far from being a mere commercial venture unconnected with academic outcomes it will result in a symbiotic process where the mutual good of both the technological institutions and the industries can be achieved. This will also give a boost to the promotion of research and development in technological institutions so conspicuous by their poor extent at present. The IITs have given a good lead in this regard. The Consultancy Unit of the IIT at Madras, for instance, has started paying off handsomely. The technological universities, should therefore have as an integral part of their constitution a consultancy service which will bring in the badly required revenues and also the opportunity for the continuous professional growth of its academics and the improvement of techniques in industry.

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Examination Reform : Programme and its outcomes

V. Natarajan

Various commissions and committees from time to time have deliberated on Examination Reform and every teacher in any Indian University has been vaguely aware of the importance of Examination Reform although not much had been done about it as yet. The need for Reform at this new Calicut University was realised very strongly at the Seminar of Post-Graduate Teachers held in August 1970, to discuss ways and means of raising the standards of teaching at the postgraduate level. The teachers then suggested that any reform being contemplated to improve teaching though desirable would not bring about expected result unless our present outmoded system of examination—testing only the memorised knowledge of the students—was replaced by a better, more dynamic evaluatory system. When this is done, it was felt, that there will be changes in the methods of teaching-learning and the unity of function of teaching, learning and testing brought about more clearly. Following up the recommendations of this teacher's seminar, the university decided to initiate a programme of Examination Reform with suitable expert assistance. An organizing committee consisting of members was constituted by the Vice-Chancellor on July 26, 1971 to formulate the plans and conduct the various workshops and seminars : Various Heads of Departments were members with the Controller of Examinations, who is the executive authority in the conduct of examinations inducted into the Committee for the reason that he must feel a part of the Reform Committee so that he would put these reforms into practice. It was really felt that his participation was beneficial to the Committee in so far as he was able to bring before the Committee the kinds of practical problems in putting some of these into practice. An expert from USA Dr. Walker H. Hill¹ and a host of others² from India were responsible for design and conduct of Examination Reform programme—a brief note about its activity will follow.

The Committee felt it necessary to initiative in the programme relevant categories of persons concerned—Principals, members of Boards of Studies, Controller of Examinations, as many teachers as possible from University Departments and affiliated colleges and students who are "customers" in this project. After long discussions, a programme and an action plan was drawn up in the following chronological order :

1. Preliminary meeting of Principals at two Regional Centres to discuss the mechanics of the programme such as
 - (a) location of workshops,
 - (b) seminars,
 - (c) selection of participants,
 - (d) grouping of colleges into zones etc. etc.
2. Meeting of Principals of Colleges and Heads of University Departments to discuss with the Consultant the problems relating to Examination Reform.
3. Orientation seminars for teachers and students at six regional centres.
4. Primary workshops at the university for selected teachers representing all the disciplines
5. Seminar for leaders chosen out of Primary Workshop participants to serve as group leaders at secondary workshops.
6. Secondary Workshops for a large number of four regional centres.
7. Meeting of leaders to finalise recommendations and materials produced at the workshops.
8. Meeting of student representatives to discuss recommendations.
9. Final meeting of Principals to consider recommendations and their implementation.

The preliminary meetings of Principals at two Regional Centres decided the location of workshops, seminars, grouping of colleges into zones, and selection of participants. A subsequent meeting of the Consultant and other experts and Principals of Colleges and Heads of University Departments detailed the problems of Examination Reform and produced a schedule for systematic and continuous work to be undertaken.

1. Consultant Expert : Dr. Walker H. Hill, Fullbright Professor, in India, Michigan State University, USA.
2. Other assistants: Prof. Peter Frankland, Technical Teachers' Training Institute, Madras.
Prof. V. Natarajan, Technical Teachers' Training Institute, Madras.
Dr. W.A.F. Hopper, Regional College of Education, Mysore.
Dr. P.N. Dave, Regional College of Education, Mysore.
Dr. Vidya Sagar Misra, Allahabad University (now Deputy Secretary, UPSC)

Accordingly, the first major activity was to have an Orientation Seminar the object of which was to prepare the ground for a favourable reception to reform measures. It was decided to have teachers and students representing every college at this seminar. Nearly 400 teachers and 90 students participated in these. The Orientation Seminar created receptiveness and provide for the right kind of attitudes which was largely responsible for successful and smooth functioning of workshops conducted later.

The second perhaps the most crucial activity was the Primary Workshops for which the participants were selected from those who attended the Orientation Seminars. A total of 226 teachers representing 30 subject areas received training in

- (a) Defining educational (instructional) objectives in their subjects at different levels
- (b) techniques and principles of evaluation
- (c) designing question papers to suit the objectives listed in (a).

In addition, they discussed at length matters like frequency of examinations, organisational changes necessary to put these changes to practice and internal assessment etc. A very important aspect of this is that question papers were designed in every subject at all the three levels of Predegree, degree and Post-Graduate.

From each subject group in the primary workshops a number of participants were selected to serve as group leaders in the secondary workshops. These were selected on the basis of the interest shown by them the readiness of response to proposed reforms and eagerness to work. A training programme for three days for these group leaders was held to outline their role in subsequent secondary workshops.

The secondary workshops were meant to involve the maximum number of teachers possible. These were conducted at four zonal centres and the seminar Principals of well established colleges at these centres helped to organise. The teachers were drawn from all colleges and they belonged to different subject areas. They also dealt with predegree, degree and post-graduate classes in their colleges. The Heads of Departments of each college in the Zone were invariably required to attend. In all, a total of 751 teachers participated in the Secondary Workshops, which in their programme of work were similar to that of the Primary Workshops.

The meeting of the student representatives discussed the recommendations of the workshops. There were 50 students in all including president of University union and leaders of student opinion from the various colleges. This was particularly useful to make the students be aware of changes and in a way prepared for them. Psychologically, this ensured participation of students which in turn helped in its acceptance and adoption.

Each subject group was initiated to make recommendations on the topics listed here :

1. Paper setters
2. Examiners

3. Frequency of Examination
4. Types of questions to be used
5. Optional questions
6. Preparations of teachers and students for change in examinations
7. Turning (if a new kind of question paper should be adopted, when should it be effective)
8. Practical examinations
9. Scaling of marks
10. Grading
11. Examination unit (or cell)
12. Internal assessment and others.

Among the many recommendations of the subject groups, the main areas are:

1. Introduction of annual university examinations.
2. Reforming the design of question papers with a view to providing diversified types of questions such as essay, short answer and objective types so that much more of the syllabus can be covered, than is possible under the existing pattern of question papers.
3. Establishing an examination unit at the university with suitable qualified people to carry forward the reforms.

These were put before the academic bodies for approval. An examination unit as part of the new University Department of Education was established. Examinations and other kinds of evaluation are too important to be trusted to amateurs above—even the most eminent teachers are amateurs. Their work must be supplemented by that of a professional staff—a staff of examination experts, specialists in evaluation. The work of the Controller of Examinations is administrative whereas that of the Examination Unit is professional. The Examination Unit will not duplicate the work of Controller but complement and cooperate. It must work in consultation with Boards of Studies and with teachers in the University and the colleges. Examination Unit now is

- (a) responsible for the final form and content of each question paper.
- (b) inviting questions from all teachers in colleges and the university departments.
- (c) refining these questions and developing a large part of acceptable questions in each subject.

A few Question Bank projects were initiated in Sciences, both Physical & Social, Humanities, languages etc. and series of workshops conducted to produce a large number of items and questions with an already accepted Blue print and Table of specifications. The author initiated most of these Question Bank projects.

- (d) taking care to see that the part of questions is constantly growing and improving in quality. A check list of criteria to prevalidate questions/items (all types including multiple choice and other objective type, short answer, long answer etc.) was developed and put to use.

(Continued on page 25)

A Model of Institutional Collaboration

A.R. Sethi

A notable example of how two institutions in the pursuit of common objective of higher learning join hands, economising in the process precious resources worth crores of rupees, is the collaboration between the Jawaharlal Nehru University (JNU) and the Indian Council of Social Science Research (ICSSR). The foundation of this edifice of cooperation was laid in 1973 jointly by the then Vice-Chancellor of JNU, Shri. G. Parthasarthy and the present Member Secretary of ICSSR, Shri. J.P. Naik. This joint venture incidentally is also an important event in the annals of library movement in India, as can be seen from the account of co-activities—already in operation or visualised for the future—of JNU-ICSSR.

SSDC periodicals display Centre

The first and the spontaneous result of declaration of cooperation was the location by ICSSR of its Social Science Documentation Centre (SSDC) Periodicals Display Centre at JNU, Campus in January, 1974. The hall, provided by JNU, was furnished and equipped by ICSSR at quite a great cost.

According to the plan worked out, almost all the social science periodicals, hitherto subscribed by JNU, were acquired by the SSDC during 1974 and 1975, in addition to the periodicals selected by SSDC for the purpose of making the Centre useful for scholars coming from outside JNU. Periodicals in other fields, like Life Sciences, Environmental and Physical Sciences, Computer and Mathematical Sciences, were continued to be acquired by JNU as usual. Thus there came into existence a periodical display centre which could rightly claim to be the only one of its kind in India, acquiring about 4000 periodicals annually of which about 3500 related to social sciences alone.

The administrative set-up of this Centre underwent a change in 1975 when the Librarian of JNU was designated as the Honorary Joint Director of

SSDC, and the control of the Centre came under his charge. The Centre was to be run now by the staff of JNU. The periodical subscription pattern, however, remained unaffected.

The situation was completely changed in the mid-1975 when JNU was declared by the ICSSR as its Northern Regional Centre. This subject will be dwelt upon a little later. The present position is that the SSDC, with which was attached the Periodicals Display Centre, ceases to exist now at the JNU Campus. The Centre is now directly under the ownership and control of JNU.

JNU—ICSSR Inter-Library Resources Centre

It will be worthwhile to view this new development in the perspective of the national policy of ICSSR with regard to such types of Centres. With the aim of promoting research in social sciences, ICSSR has opened 4 Regional Centres in India—Eastern Regional Centre at Calcutta, Southern Regional Centre at Hyderabad, Western Regional Centre at Bombay, and the Northern Regional Centre at JNU Campus in New Delhi. Over the years, ICSSR proposes to establish one Regional Centre in every major State.

The primary purpose of establishing these Centres is to make available to the research scholars the social science research material at one central place. This will be done by collecting from various libraries in the region their less-used periodical-files, newspapers and Government documents. The participating libraries will remain the owners of their material and will be free to recall their material temporarily or for good. In addition, the Regional Centres will provide to the scholars the facilities of reprographic service, and a courier service for obtaining documents on loan. ICSSR has also introduced a scheme of study-grants for those who have registered for Ph.D. in social science subjects in any Indian university. This scheme provides for two way travel to the Regional Centre from one's residence-town, and a modest allowance per day for lodging and boarding.

The author is Assistant Librarian in JNU.

JNU, by virtue of being declared the Northern Regional Centre, will be recipient of all the above facilities. It will also receive an annual grant of Rs. 2 lakhs to be spent on acquisition of social science research material. By providing its centrally located building in New Delhi, JNU has made available to ICSSR the nucleus for the operation of Inter-Library Resource Centre, to which presently the 4 Regional Centres and eventually all the Regional Centres will be linked with Telex, "so that information about social science research resources could be made available to research-scholars and students without loss of time."

Northern Regional Centre

The Northern Regional Centre of ICSSR will be located in JNU Campus. For this purpose JNU will make available one or two floors of its new library building (yet to come up in the new Campus) to ICSSR to house social science research material collected at the Regional Centre in the manner indicated above. The ICSSR will bear the entire cost of the floor (or floors), and will thereby have permanent occupancy rights in them, though the ownership rights shall vest in JNU.

The Vice-Chancellor of JNU will be the Chairman of the Centre, and he will be assisted by a Director of the Centre who will be a Professor of JNU in any social science discipline, and a Joint Director of the Centre who will be the Librarian of JNU. There will also be a management committee for the Centre consisting of the Chairman, the Director, three members nominated each by the ICSSR and the JNU.

Study Grants Scheme

In collaboration with JNU, ICSSR also proposes to execute a Study Grants Scheme for social scientists and research students coming to Delhi to utilise the resources of the Inter-Library Resource Centre and the Northern Regional Centre. In addition to the two-way travel and a daily allowance provided by

ICSSR the scholars will be able to avail themselves of the facility of lodging and boarding at JNU Guest House on payment of very nominal charges.

Opening of New Vistas by JNU

A fruitful cooperation between JNU and the ICSSR has paved the way for more such ventures of institutional cooperation. Already, the National Science Library, an organ of the Council for Scientific and Industrial Research (the counter-part of ICSSR in the field of science and technology) is operating from JNU Campus. With its vast collection of scientific books, periodicals and other types of documents, it is doing a yeoman service not only to the academic community of JNU but also of the whole country. However, this cooperation can be carried further. For instance, the 500-odd science periodicals presently being subscribed by JNU, can easily be acquired by the National Science Library in addition to its own thousands of other periodicals acquired by subscription or by gift and exchange arrangement. Part of the acquisition cost can be met by JNU as well. This will enable the research-scholars to work in a congenial atmosphere of their taste, which the JNU Library lacks at present due to its orientation towards social sciences.

There are several other important libraries operating at short distance from the JNU Campus, e.g. the libraries of National Council for Educational Research and Training and All India Institute of Medical Sciences, the National Medical Library and the Jamia University Library, not to speak of the myriad of Government Departmental Libraries located in the R.K. Puram complex. By formulating a cooperative-acquisition programme with several of these libraries, much of our precious foreign exchange spent on foreign reading material can be saved.

What is needed most is the will to act. JNU can provide the lead. The light kindled by the previous Vice-Chancellor is there to illuminate the path.

(Continued from page 23)

- (e) helping paper setters to set question papers from the part.
- (f) taking care to see that each question paper is set according to design previously approved by the Board of Studies.
- (g) getting the external examiners (paper setters) to come to the university to judgment on quality of question papers.
- (h) setting up question papers for M.A./M.Sc. examinations for those of university's own departments.
- (i) supervising the work of Examiners, organising valuation by Examiners under guidance.
- (j) researching into examinations in the areas of

types of questions, item analysis, retention of questions in the parts, provision of analysed results to colleges.

- (k) helping to design internal assessment.

The reform continues and attempts are made to devise rational procedures for storage of parts of question/item and further work is planned in the areas of Question Bank, internal assessment and grading.

This particular model is worth adoption by all universities (atleast those that are selected initially to put the reforms into practices) with modifications to suit their own systems. It is worthwhile to part the experiences of such universities (Calicut, Gauhati, Meerut, Allahabad etc.) before implementing the Reforms in all universities.

The author is Project Officer in the AIU.

Round Up

Statistics of Science and Technology Seminar in Prague

Problems associated with the development, improvement and standardisation on statistics in science and technology will be studied at an international seminar in Prague from January 19 to 23, 1976.

The seminar is the third in a series organised by the United Nations Economic Commission for Europe (ECE) and the United Nations Educational, Scientific and Cultural Organisation (UNESCO). The two ECE subsidiary bodies concerned are the Conference of European Statisticians and the Senior Advisers to ECE Governments on Science and Technology. Earlier seminars were held in 1969 and 1972.

Under the first of three main headings, participants in the seminar will discuss the improvement of the quality and international comparability of science statistics. They will look at the progress made in the development of statistics on science and technology, survey statistical study of research and development activities in international organisations, and consider the problems of collecting and analysing data at the national level.

The second major topic will be the relationships between science and technology statistics and general economic statistics. Participants will discuss the coordination of science statistics with systems of national accounts and balances; and statistics on the transfer of technology.

The final item for discussion will be scientific and technological indicators as developed by the Council for Mutual Economic Assistance.

The seminar will be held, on the invitation of the Government

of Czechoslovakia, at the Hotel Olympik, Prague.

National Open University

Prof. S. Nurul Hasan, Union Minister of Education, while inaugurating the Geo-Physics and Electronics Instrumentation Centre of the Andhra University at Waltair announced that the national open university would soon be set up in Delhi to impart non-formal education. This would be in accordance with the recommendations of the Vice-Chancellors conference held recently. The University Grants Commission will soon appoint an expert committee to examine the matter in all its aspects.

He said that the Central government was also considering the proposal to open a university at Pondicherry like the one at Hyderabad. He however reiterated that his Ministry is opposed to the starting of more universities unless warranted by national interests. The government did not want sub-standard institutions to come up. The considerations that should govern the opening of post-graduate centre are availability of infrastructure, proper resources and need to satisfy local requirements.

Prof. Hasan said that in the wake of the oil crisis and the national emergency the budgetary allocation to education had been drastically cut. The expenditure on education by the Centre and the States during 1975-76 would go up to Rs. 185 crores from Rs. 170 crores. However the central share would increase in the coming years if there was an overall improvement in the national economy. But half of this amount would be spent on elementary education.

He also informed that the central government has initiated

a programme for providing common instrumentation service for the educational and research institutions in the country in a bid to provide better facilities for research and development. The programme worked out by the Education Ministry in collaboration with the Council of Scientific and Industrial Research, Department of Science and Technology, the University Grants Commission and Indian Institutes of Technology, was aimed at developing indigenous instruments and equipments for the local requirements.

Political Science Workshop

The University Grants Commission and the Department of Political Science of the North-Eastern Hill University conducted a workshop on Political Science syllabi recently at Shillong. Thirty five participants from the universities and colleges of Burdwan, Rabindra Bharati, Visva-Bharati, Gauhati, Dibrugarh and North-Eastern Hill attended. In addition, some fifteen teachers from the colleges of Nagaland, Meghalaya and Mizoram also attended the workshop.

The workshop was inaugurated by Dr. C. D. S. Devansen, Vice-Chancellor, NEHU. Four sessions were held. Professor Iqbal Narain, Head of the Department of Political Science, University of Rajasthan and Professor Randhir Singh, Head of the Department of Political Science, University of Delhi, guided the sessions of the workshop. Dr. C.N. Bhalerao, Head of the Department of Political Science, NEHU was the Director of the workshop for purposes of coordination between the Indian Political Science Association and the UGC. Professor Nirmal Bose, General Secretary of the Indian Council of Political Science Association attended the workshop as a special invitee.

In the various sessions of the workshop the need for modernisation and updating the existing political science syllabi at the undergraduate and postgraduate levels was stressed. A seminar on "Trends in Contemporary Politi-

oal Science Research" was also organised. A souvenir was brought out by the Department of Political Science and the university arranged a cultural programme on this occasion.

Environmentally Sound Technology

A group meeting on 'Conceptual Framework for Environmentally Sound and Appropriate Technologies' was held in Nairobi, Kenya, from 1st to 4th December, 1975, to discuss the application of modern technology in the service of developing countries to bring a radical change in their life-styles. The meeting was organised by UNEP. The background paper prepared for the meeting highlighted the indiscriminate growth and uncritical adoption of modern technology which have emerged not only from developing countries but also from developed countries. In developed countries the dissatisfaction with modern technology has been associated with the fears that there might be limits to growth, the irrational and wasteful depletion of natural resources, the pollution of the environment; and the disillusionment with the consumption oriented society.

In developing countries, the modern technologies seem to be unable to cope with the problem of growing unemployment and the widening gap between the cities and the villages and between the elites and the masses. A blind application of modern technology appears to make the developing countries increasingly dependent on industrially developed nations and thus affects their self-reliance. The paper observed that the effects of technology upon the environment and society are not only determined by the type of technology that is developed but also by the choice of available technologies. Invariably, there are several ways of exploiting resources and each of these ways has environmental and social effects. In such situations, the impact on the environment and on society is an inevitable consequence of the particular choice of technology

that is made. Thus by taking care about the criteria for the choice of technology, concern for the environment and society can be worked out but in this choice the abundance or scarcity of capital, manpower, skills, energy and raw materials should have a determining influence.

Andhra—Liverpool Collaboration

Mr. M.R. Apparow, Vice-Chancellor of Andhra University while presenting the annual report on the occasion of the University convocation said that the Andhra University had formulated a scheme in collaboration with Liverpool University in the field of off-shore engineering. The proposals have been prepared at the instance of the University Grants Commission and with the approval of the Liverpool University. Prof. P. Holmes of Liverpool had detailed discussions with the faculty members of the engineering, Zoology and Chemistry departments of the university. This collaboration would be of great help in the development of off-shore engineering projects of the university.

The geo-electronic instrumentation centre would also be started in the engineering college which would take up the designing and construction of prototype instruments with indigenous material useful for measuring soil temperature, seismic soundings and other allied fields.

Courses at the undergraduate level are also being restructured on the suggestions made by the Education Commission to arrest the endless rush for admission to the postgraduate and professional courses. These courses would be job-oriented with internal assessment even at the undergraduate stage.

Teachers Code of Conduct

The Syndicate of Madras University has approved the Fifth Plan programmes of the university which is estimated to cost Rs. 30 crores. The university proposes to computerise the

examination system. It would cover the PUC, BA and BSc examinations both for setting questions and their valuation. Dummy numbers would be used to avoid unfair means.

The Association of University Teachers in Tamil Nadu has welcomed the State Government's private colleges Ordinances. Prof. S. Swaminathan President of the Association said in Madras that these ordinances contemplated only reasonable regulations for the healthy functioning of the private colleges and for securing dignity of treatment to the teachers. The Association was against making any distinction between minority colleges and others for the purpose of these ordinances. The Association would formulate a code of conduct for teachers in consultation with the universities and wanted the management of private colleges to evolve a code which could raise the moral standards of educational agencies in the State.

The Association has about 10,000 university teachers working in its 135 private colleges and 50 government colleges as its members.

Courses on Medical Genetics

Inaugurating a four day national seminar on medical genetics at the Osmania University Genetics Department, Mr. P. Jaganmohan Reddy, Vice-Chancellor of the university said that the genetic counselling had emerged as a new discipline in recent times. It was an important preventive aspect of medical service for families which risked the transmission of serious disorders. It was defined as a communication process concerning the human problems associated with occurrence of the risk factors of genetic disorders in families.

Genetic counselling should be able to advise on diagnosis, cause of disorders and treatment in addition to the advice on risk occurrence in families. A genetic counsellor should also advise on adjustment to the disorder.

The seminar was jointly sponsored by the Department of Genetics, the Indian Council of Medical Research, the University Grants Commission, the Indian Society of Human Genetics and the British Council. Prof. A.E.H. Emery, the British medical geneticist was the seminar Director. Professor N.V. Suba Rao said that in India the genetic research has yet to take roots. The National Institute of Health USA spends about Rs. 1,000 crores a year on such research programmes. In view of the family planning programme of the Government of India it is fast becoming a separate discipline and it seems logical to introduce course on medical genetics as a necessary constituent of the teaching programme in medical education in this country.

Genetic medicine has emerged as a new powerful clinical discipline equipped with appropriate technology for detection, diagnosis, prevention and treatment of genetic diseases. The new technology has enabled the foetal detection of sixty serious genetic disorder and identification of carriers and the screening of high risk in population for traits and diseases.

Departmental Councils for Patna

The Patna University has decided to set up departmental councils in colleges and university departments for toning up the work of various departments at the postgraduate and undergraduate stages. The State University Teachers Association had recommended such measures to ensure that teachers have a sense of involvement and participation in the activities of their respective departments both at the levels of a decision making and execution.

The councils have been formed accordingly to plan out teaching and research work in the departments and to suggest ways and means for enhancing the utilitarian aspect of general lectures and tutorial classes. They would also consider the measures for

ensuring regular holding of classes and would discuss and recommend topics of research for Ph.D. programmes and would also help in processing applications for registration in this regard. The holding of seminars and symposia and organisation of educational tours and such other activities in the department would also be entrusted to these councils. The need for the development of the departmental library and laboratory would also be discussed and measures would be suggested for their better functioning in the interests of students and faculty members.

Besides preparing the departmental budget, the councils would also plan the proper utilisation of the resources of the departments and take necessary decisions regarding purchase of books, equipments, instruments, chemicals etc. They would also consider and resolve individual and collective grievances and difficulties of teachers and students and ensure general discipline in the department.

The councils at the undergraduate level shall consist of all the teachers of the departments with the head of the college department as its chairman. At the postgraduate level it will consist of all teachers assigned to the postgraduate departments and one representative of college departmental council for every five university teachers with the head of the university department as its chairman. In the faculty of education there shall be only one departmental council consisting of the teachers in the two training colleges as well as the postgraduate department of education. The head of the postgraduate department shall be the chairman of the council.

The departmental councils shall meet at least once every term and will also meet at the close of each session to review the work of the department and to plan out its teaching work in the coming session.

The postgraduate departmental council shall prepare the annual report on the activities of

the department for submission to the university. The undergraduate departmental council shall prepare the annual report on the activities of the department and submit the same to the principal of the college who in turn will compile all such reports from different departments and submit them to the university. The State Government in their revised university ordinances have already recommended the formation of departmental councils.

Tamil Courses for Gujarat

The Gujarat University, Ahmedabad, will soon introduce diploma and certificate courses in Tamil language. The University Grants Commission has agreed to provide funds for the creation of a post of lecturer and has also sanctioned grants for the purchase of necessary books. The university proposes to start these courses from the next academic year.

Maharashtra to implement UGC Scales

The State of Maharashtra has accepted the scales of pay recommended by the University Grants Commission for the university and college teachers.

Teachers possessing qualifications prescribed by the UGC or the university and those who are condoned from the prescribed qualifications by the university would be eligible for the scales while those having only university prescribed qualifications or condoned by the university would have to complete the UGC qualifications within five years failing which their annual increments would not be granted.

Himachal Farm Complex

The Himachal Pradesh University would be setting up an agricultural complex on a 1,300 acres plot near Solan at a cost of Rs. five crores. The Indian Council of Agricultural Research has agreed to provide rupees one crore for this complex in the Fifth Five Year Plan. Dr. B.S. Jogi, Vice-Chancellor, has elaborate plans for the development

of the complex which will provide residential facilities for all categories of employees on the campus. The university has developed improved variety of crops which would yield Rs. 10 lakhs a year and will be grown in the farm and research projects of the university on the pattern of the Uttar Pradesh Agricultural University at Pantnagar.

Visitors from Sri Lanka

Tea scientists from Sri Lanka recently visited the Assam Agricultural University, Jorhat. The visitors appreciated the efforts of the university for organising a well designed specialised academic programme in tea production technology. They explained the salient features of tea culture and manufacture practices followed in Sri Lanka and also shared the research findings on the dormancy of winter buds in tea. Earlier Dr. P.C. Bora, Professor and Head of the Department of Tea Husbandry and Technology, while welcoming them, emphasised the need for closer collaboration between the scientists and the academicians of the two countries in the growth of science and technology.

Gujarat students explore two paleolithic sites

The students and teachers of Gujarat Vidyapeeth recently identified two middle paleolithic sites while exploring the floor of the Majum and Vatrak rivers under the National Social Service Programme. A ten-day camp was organised by the Vidyapeeth and was largely attended by students. A vigorous search was conducted along with the five mile stretch of the rivers in Dehgam taluka of Ahmedabad district. This effort yielded useful stone implements such as flakes, cleavers and side scrappers. The sites of a fort standing on a three-acre site was also explored and some coins, muzzle shot, beads of pieces of a porcelain dish bearing Chinese characters, probably a fruit bowl of the Sun period was also found. Two square baths, complete with drainage channels along with the periphery and

square controlling pits were also discovered. The smooth concrete finish of the baths, clearly show that the fort had a residential housing colony and was not merely a garrison post. Two silver coins of the Gupta period were also found.

The stone tools made of jasper and agate, which were found during this exploration, would be sent to the Physical Research Laboratory for further microscopic examination to spot scars that may indicate the use of the tools. Dr. (Miss) Suman Pandya of the Gujarat Vidyapeeth in collaboration with the officials of the Archaeological Department conducted this project. The Vidyapeeth has plans to make further explorations of these sites which are likely to yield more useful information.

Ahmedabad Polyvalent adult education centre

A polyvalent adult education centre for urban workers in the city of Ahmedabad is to be established during the year 1975-76 by the Government of India. The State Government has sought the assistance of Gujarat University to run this centre. The university has agreed to implement the programmes through its Department of Labour Welfare in the School of Social Sciences. The cooperation of industries, the State Labour Welfare Board, the trade unions and other academic and social welfare governmental and non-governmental agencies will also be available in the planning and organising the centre's activities. The Central Government would be providing financial assistance for meeting the recurring and non-recurring expenditure of this centre.

The polyvalent education concept aims at offering the urban worker a comprehensive continuing education programme suited to his specific vocational, educational and other learning needs. Through such a programme it is hoped that every worker will be helped to become a better worker, a better citizen and a better community member. The learning

needs of workers will be identified through surveys and interviews with employers and employees. The programmes will be for men and Women workers in the organised and unorganised sectors. They would be held as near to their places of work as possible. The centre will draw upon the services of variety of specialists and experts in designing and conducting the programmes.

The polyvalent centre at Ahmedabad will be the third to be set up in the country. The first one was set up in Bombay in 1969 and is run by the Maharashtra State through the Bombay City Social Education Committee. The second centre has been recently set up in Delhi. There is a provision for establishment of many other centres in the fifth plan in urban areas.

New Teacher Training Programmes

The microteaching unit at Lancaster University (North-West England) has developed a type of teacher training programme specially suited for the developing countries. It will be introduced in India and Malaysia shortly. For this purpose the Leverhulme Trust Fund has awarded a £16,000 grant to the unit to adapt a self-instructional programme on questioning skills in the classroom for trainee and inservice teachers in two countries. The members of the Lancaster University will be working on the programme for a two-year period with the staff at the Centre of Advanced Study in Education, University of Baroda and at the University of Malaya.

A planning conference will be held at Lancaster in January/February 1976 at which Prof. Elizabeth Perrott, Head of the Unit and members from the Baroda and Malaysia centres will be present. Two members of the teaching staff at the Lancaster unit will also visit India in May/June to assist in the launching of the scheme and will return at intervals to monitor progress.

Interest in the course has also been shown by the Faculty of Education at Sri Lanka University,

Colombo and the South Gujarat University.

The teaching programme will be based on a microteaching course designed by the unit for teachers in Britain. The course has been shown to improve significantly the teacher's ability to question pupils effectively and encourage them to participate in discussion during lessons.

Microteaching was originally developed in 1967 at Stanford University in the United States but the programme developed by the Lancaster University unit is far more economic than the Stanford model. Britain's Department of Education and Science recently awarded a £47,000 grant to the unit enabling it to disseminate the programme on effective questioning and extend its work.

Professor Perrott who would be visiting India this summer said in an interview that the new programme is designed to involve the trainee teacher actively in identifying and practising specific teaching skills rather than learning about them in lectures. Furthermore, the teacher is able to watch his own performance on closed-circuit television, and is provided with the means of analysing his teaching behaviour and charting his progress. The method is less costly and more effective than traditional methods of teacher training and the research has shown that microteaching courses, designed to improve teaching skills, are highly adaptable when transferred from one country to another.

New U.P. Universities Statutes

The Uttar Pradesh Government have notified the first instalment of statutes under the Universities Act. These relate to the age of superannuation and the minimum qualifications required for appointment as lecturers in universities and degree colleges. Keeping in view the recommendations of University Grants Commission in the context of the new scales of pay, the statutes provide as follows :

1. The age of superannuation will be sixty years in the universities and no extension shall be granted thereafter. The teachers serving on extension beyond the age of sixty will however be allowed to continue for the unexpired term of extension but will not avail the new scales of pay. In the case of Allahabad University also the age of retirement would be at sixty but those who have crossed sixty will be allowed to continue up to sixty-two years of age which is the present age of retirement, but without availing the new scales of pay. Those who have not crossed sixty will be given the option of retirement at sixty and availing the new scales of pay or at sixty-two and continue in the old scales of pay.

2. The minimum qualifications required for appointment as teachers of universities and degree colleges are :

(A) Minimum qualifications for teachers in the faculties of Arts, Commerce, Science and Social Sciences :

(i) A doctorate in the subject of study concerned or published work of a high standard in that subject and

(ii) Consistently good academic record with first class or high second class (B+) master's degree in the subject concerned or an equivalent degree of a foreign university in such subject.

(B) Minimum qualifications for teachers of degree colleges in the aforesaid faculties :

(i) A consistently good academic record with first or high second class (B+) master's degree in the subject concerned or an equivalent degree of a foreign university in such subject and

(ii) M. Phil. degree or a recognised degree beyond the master's level or published work indicating the capacity of a candidate for independent research work.

Gold Medals for Medical Student

Mr. R. Parthasarathy of the Bangalore Medical College won eight gold medals in the MBBS

examinations for the year 1974 for standing first and securing highest marks in Medicine, Physiology and Pathology.

Among others, Mr. Parthasarathy was awarded the Maj-General S.L. Bhatia Gold Medal for Physiology, the Mysore Medical Education Society Gold Medal for the best student, Dr. Kamala Menon Memorial Gold Medal for Medicine and Dr. C.V. Shankarambal Gold Medal for Pathology.

Advanced Courses in Homoeopathy

Post-graduate and post-diploma courses will be introduced in the national institute of homoeopathy as part of the chain of Central institutions for advanced learning in various systems of medicine.

The institute will have facilities for advanced research to establish the advantage of the system in certain fields.

The health ministry will have similar institutes for Ayurveda, Unani, Siddha and naturopathy in different parts of the country. For allopathy, it has already the All-India Institute of Medical Sciences in Delhi.

An allocation of Rs. 74 lakhs has been made for the institute of homoeopathy during the current plan period. It was decided to locate the institute in West Bengal as the State has been the home for homoeopathy having the oldest and the best institutions, the oldest council and having produced many eminent practitioners of the system.

The state government has donated a 100-acre site for the institute campus.

The government of India has recognised Homoeopathy for the purpose of national health service particularly as orthodox medical men themselves have recognised the value of the system in allergic conditions, gastric complaints, asthma, eczema and rheumatic conditions.

The government has engaged the services of an eminent practitioner of the system for advising

the government on matters relating to homoeopathy. There is a separate cell with a complement of technical and secretariat staff.

There are 91 homoeopathic medical colleges in the country training practitioners in the system conducting courses over a period of four years. Most of them receive government assistance.

Besides, under the central council for research in Indian medicine and homoeopathy, there is a central institute for homoeopathy in Calcutta and regional research institutes in Delhi and Kottayam (Kerala).

The central council of homoeopathy regulates and seeks to maintain uniform standards and also a central register.

There are about 70,000 practitioners enrolled on the state registers of homoeopathy, besides 55,000 enlisted and a few lakhs practising as part-time hobby.

Times Elocution Contest

The Times of India would be holding a public speaking contest in English which will be open to colleges and university students in Gujarat. Preliminary contests would be arranged in Surat, Baroda, Rajkot and Ahmedabad with the cooperation of the South Gujarat University, M.S. University, Saurashtra University and the Gujarat University. The winners and runners up in these contests will compete in the finals which will be arranged in Ahmedabad during January 1976. Cash prizes will be awarded to the winners and runners up in the regional and final contests.

Pension for Retired Sportsmen

The Karnataka Government is considering a proposal to sanction pension to a few outstanding sportsmen who retire from the State services. The government is also considering proposals to provide other incentives for encouraging sports in the State. A similar proposal is under consideration of the Kerala Government. These steps would provide the much needed encouragement to sportsmen.

Mahatma Gandhi Visiting Professorship

The handsome donation of Rs. 1 lakh from Prof. V. Venkata Rao, Professor Emeritus at Gauhati University has made it possible for the NEHU to institute Mahatma Gandhi visiting professorship from this year. Shri Fakhrudin Ali Ahmed, President of India, who is also the Visitor of the University inaugurated the visiting professorship on 31st of October, 1975.

Science Academy increases Fellowships & Scholarships

The Indian National Science Academy has decided to double the number of scholarships to 30 and raise the ceiling of total fellowships from 400 to 700 from this year. With the advancement in various fields of scientific disciplines and addition of frontier areas of research over the years, there was an urgent need for raising the number of scholarships. Separate sectional committees for agriculture, forestry and animal sciences in addition to the existing sectional committees for other scientific subjects have been constituted. The following scientists have been awarded the fellowships for the year.

Prof. U. Aswathanarayana, Centre of Advanced Study in Geology, Saugar University; Prof. K.S. Bhargava, Botany Department, Gorakhpur University; Prof. P.K. Bhattacharya, Indian Institute of Science, Bangalore; Dr. P.K. Iyengar, Bhabha Atomic Research Centre, Bombay; Dr. B.S. Joshi, CIBA Research Centre, Bombay; Prof. G.K. Manna, Zoology Department, Kalyani University; Dr. N.K. Notani, Bhabha Atomic Research Centre, Bombay; Dr. I.C. Pande, Geology Department, Panjab University; Prof. K.R. Parthasarathy, Professor of Mathematics, Bombay University; Prof. G.S. Sanyal, Indian Institute of Technology, Kharagpur; Prof. M.V.C. Sastri, Chemistry Department, IIT, Madras; Prof. M.M. Sharma, Chemical Engineering Department, Bombay University; Prof. B.V.S.P. Sreekantan,

Tata Institute of Fundamental Research, Bombay; Dr. S. Sri-ramachari, Director of Registry of Pathology, Indian Council of Medical Research, New Delhi and Prof. S.K. Trehan, Mathematics Department, Panjab University.

Jammu reforms examination procedures

The conduct of examination in the University of Jammu has been streamlined in recent months. The attendance regulations have been enforced effectively. To help the students to catch up with their studies and to ensure that no undue hardship is caused to them, the university and the colleges are holding special classes for the candidates falling short of lectures. The university would also be holding special examination for the benefit of those students who could not complete their lectures by the time the examinations had commenced. The enforcement of attendance rules has restored the academic and administrative climate in the colleges for initiating further improvements in the conduct of examinations.

In a meeting of the Principals and the supervisory staff convened by the Vice-Chancellor recently, the examination procedures were reviewed. Each centre of examination was assigned not more than 100 to 120 candidates. The invigilating staff was to be carefully chosen and the number of vigilance parties had been increased. They were required to make more frequent visits with the help of the local district authorities. As perfect law and order situation was maintained during the examinations, there were fewer cases of unfair means. A number of procedural changes have been made in the old statutes on the pattern of Delhi University. The new features have helped in expediting the disposal of the cases. There is no open confrontation now between the supervisory staff and the candidates.

JNTU plans for establishing development of continuing technical education

Mr. M.V. Rajagopal, the new Vice-Chancellor of Jawaharlal Nehru Technological University, is anxious to streamline the working of the technological university. He said that this institution is different from others as it has not only academic but industrial and economic subjects of studies included in its courses. He assured that the university will serve as the harbinger of the industrial and economic prosperity of the state.

The principals of the constituent and associated colleges of the university also met to discuss the possibility of establishing a department of continuing technical education. This department would offer part-time courses at various levels for the benefit of people engaged in industry, commerce and trade. The University Executive Council would also initiate steps for the statutory change of the name of the university to Jawaharlal Nehru University of Science and Technology so as to reflect the multi-faculty character of the university would soon establish departments of basic

sciences, social sciences, humanities and languages but their main focus would be on technological education and these departments will support and emphasise the multi-disciplinary approach to technological education.

Entrance tests are also planned for admissions to B. Tech. programmes. For this purpose the university would soon communicate with the three other universities in the State having engineering faculties. In case the three universities agreed the entrance examination would be conducted statewide. Way to strengthen the industrial consultancy division of the university were also suggested so as to achieve the twin objectives of raising the university revenues and bringing about much closer involvement of the university with the industry.

It was also recommended that the system of internal assessment which was a novel feature of the university should continuously be reviewed and strengthened to make a reliable instrument of evaluation. A seminar is proposed to be held either in January or February 1976 for having expert opinion on the future academic structure of the university for the faculties and courses to be developed particularly outside the technological faculties.

Concessions for Sportsmen

The Kerala Government has decided to enhance the existing reservation of seats for outstanding sportsmen in professional colleges and institutions. Reservations will also be provided to the bright sportsmen for certain other courses. From the next academic session the following number of seats would be reserved : engineering colleges, -five, polytechnics-six, one seat each in postgraduate course, BSc, BA, Pre-degree (Arts and Science), LLB, medical colleges-three, Ayurveda colleges-four and industrial training institutes-twenty.

This decision will go a long way in encouraging the development of sports activities in the State.

OUR COLLEGE BOOKS

<i>D. M. Mithani</i>	Rs.
MONETARY THEORY, (3rd Revised Ed.)	24.00
INTRODUCTION TO INTERNATIONAL ECONOMICS (5th Ed.)	20.00
FUNDAMENTALS OF PUBLIC FINANCE (2nd Ed.)	18.00
<i>K. D. Jehangir & D. M. Mithani</i>	
ELEMENTARY MATHEMATICS AND STATISTICS FOR ECONOMICS	30.00
<i>A. S. Deshpande</i>	
FACTORY MANAGEMENT AND BUSINESS ORGANISATION (6th Ed.)	18.00
INDUSTRIAL ORGANISATION AND MANAGEMENT	12.50
<i>B. P. Dalal</i>	
TWENTIETH CENTURY AMERICA	14.00
GLIMPSES OF AMERICAN HISTORY Vol. I	20.00
<i>James Menezes</i>	
MERCANTILE LAW (15th Revised Ed. 1975)	21.00
<i>M. Satyanarayana</i>	
SALESMANSHIP, SALES MANAGEMENT AND ADVERTISING	21.00
<i>Lascelles Abercrombie</i>	
PRINCIPLES OF LITERARY CRITICISM	5.00
<i>Y. D. Keskar</i>	
STATISTICS	16.00
<i>T. B. Desai</i>	
ECONOMIC HISTORY OF INDIA (1757-1947)	17.00
ECONOMIC HISTORY OF GREAT POWERS	16.50
<i>U. R. Koli & Urmila Rai</i>	
COMMERCIAL CORRESPONDENCE (3rd Ed.) 1975	10.00
<i>H. S. Shetty</i>	
ELEMENTS OF INDIAN ECONOMICS	10.00

VORA & CO., PUBLISHERS PVT. LTD.
3. Round Building, Bombay-2.

Social Sciences in agricultural courses

A study team of the Indian Council of Social Science Research and the University Grants Commission was appointed to go into the role of social sciences in agricultural education. In the report a suggestion has been made for the allocation of at least ten percent of the curriculum in agricultural institutions for social sciences. The object of introducing social science in agricultural education was to make the agricultural graduates sensitive and responsive to social factors which affected agricultural development. The report said that the agricultural graduates must have a perspective of the national situation and the problems of the country. Also they must understand the economic and social pattern of the country and how these affected the development of Agriculture. It was also important for them to understand the relationship between agricultural production, system of distribution and problems of poverty and malnutrition. The underlying emphasis in teaching courses should be on the problems of small farmers and weaker sections of society so that the student was encouraged to think in ways of raising the standard of living. The following additional courses have been suggested : the farmer and his environment, socio-economic problems of India-agriculture, extension education and community development, integrated area development programme, development and extension method, project formulation and appraisal, agricultural economics and farm management.

Core Library for Patna Geology Department

The Geology Department of Patna University will soon have a core library with complete data of underground drilling operations in various parts of the country. A similar library was set up in Mysore last year. The department would also organise an

annual workshop practice for the guidance of the officers of geological organisations and university teachers in recent developments in geological techniques.

The Geology Department was established in 1946 with an endowment of a Tata Chair by the House of Tatas to promote teaching and research in Geology in the State. During 29 years of its existence it has developed into a well-known Institution of Geological and other allied sciences. Its laboratories provide all the facilities for analysis of ore mineral, water, soil, trace and rare elements.

Andhra's Adult Education Plan

The Andhra University has constituted a committee under the chairmanship of the Vice-Chancellor and principals of campus colleges, registrar and director of adult and continuing education department as member's to draw the adult education programmes. A committee of local citizens comprising heads of public sectors undertakings, presidents of chambers of commerce, principals of medical and other local colleges, station director of All-India Radio and the District Public Relations Officer would help in identifying the needs of various adult groups to organise meetings, courses seminars and other programmes in the department. The department is already conducting an adult education programme for the class IV employees of the university working in various departments of the university. There are plans to have a basic course in adult literacy and citizenship. The department has also completed a fifteen days course on nutritional needs of various persons in the family with practical demonstrations open to ladies in the campus and outside the campus. A course in public speaking in Telugu and English will also be conducted for students, research scholars and community workers.

Physical Education for Council Examinations

The Council for the Indian School Certificate Examination has decided to introduce physical education as a subject for the certificate of secondary education examination. When the 10+2 pattern of school education becomes effective it is expected that most of the schools affiliated to the Council will send candidates for examinations in physical education. This would provide an incentive to students keen on sports, for their proficiency will enable them to get a good grade.

The Council has made adequate preparations for the development of physical education syllabus. The colleges have been advised to employ efficient physical training instructors and use the services of qualified coaches wherever necessary. What makes the Council syllabus attractive is the way in which students will be examined. A series of tests have been prepared from which a student's ability would be ascertained. An index of each student's ability and progress will also be maintained. The Council has adopted a scientific approach and has studied the assessment methods employed in foreign countries like Canada and England before developing these norms.

2-3 years of degree Course in Bengal

The Vice-Chancellors of the universities in West Bengal met recently to discuss the patterns of university degrees. The consensus of the opinion was that it would be beneficial for the general mass of the students if the pass and honours courses of the universities are made of two and three years duration respectively after the introduction of 10+2 years higher secondary course.

The final examination for the pass course students should be after two years study in the degree colleges and those for the honours students after three years study in the colleges.

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF SAUGAR ADVERTISEMENT

No. R/75 SAGAR, dated 20th Dec. '75.

Applications are invited for the following posts so as to reach the undersigned by name not later than 20/1/1976. A prescribed application form may be obtained for academic posts by sending a self-addressed envelope and a Postal Order of Rs. 5-00. Applications for Administrative Posts may be sent on plain paper with a postal order of Rs. 5-00 stating full name and address, date of birth, detailed qualifications and experience etc.

2. Persons already in service should send their applications through proper channel. An advance copy, however, may be sent direct. The application should carry a testimonial with regard to the work and conduct of the candidate from the Head of the Institution he is serving or has last served.

3. Applicants, if called for an interview before a Selection Committee, will not be paid any travelling or other allowance. They will bring with them their original research paper, degree etc.

4. The period of probation shall be two years from the date of substantive appointment to permanent posts. This period of probation may, however be extended by such further period as the Executive Council may deem fit, but the total period of probation shall in no case exceed three years. Service during the temporary appointment including the probationary period may be terminated without notice and without assigning any reason.

5. The age of retirement is sixty years.

6. The University reserves the right to negotiate with suitable person or persons if necessary.

Administrative Posts

- (i) **University Registrar :** One post (Permanent).
Salary Scale: Rs. 1100-50-1300-60-1600.

Qualifications: Applicants should have at least a second class Master's degree of a statutory Indian University or a degree recognised as equivalent thereto. They should possess at least ten years' experience in a responsible academic/executive position in a University or College or a Government Department or a Business Organisation of repute. They should also have a good command of English and Hindi languages.

Capacity to develop a corporate life in a residential academic institution and understanding of the problems of students and faculty will be desirable.

In a very deserving case, however, the conditions regarding academic qualifications may be relaxed.

- (ii) **Deputy Registrar :** One Post (Permanent).

Salary Scales: Rs. 700-50-1250.
Qualifications: Applicants should possess at least a Second class Master's degree with at least seven years' academic/administrative experience in a University or College or Government Department. They should also have a good knowledge of English & Hindi languages.

Experience of different aspects of University Administration will be a desirable qualification. In a deserving case, however, the academic qualifications may be relaxed.

- (iii) **Assistant Registrar:** one post (Permanent).

Salary Scale: Rs. 400-40-800-50-950.

Qualifications: Applicants should possess at least a Master's degree with at least five years' academic/administrative experience in a University or College. They should also have a good knowledge of English and Hindi languages.

In a deserving case, however, the academic qualifications may be relaxed.

Academic Posts

Department of Pharmaceutical Sciences

- (i) **Professor in Pharmacognosy & Phyto-Chemistry:** One Post (Permanent)—sanctioned by U.G.C.

Salary Scale: Rs. 1100-50-1300-60-1600 (Likely to be revised).

Qualifications: (a) A first or second class Master's degree of an Indian University or an equivalent qualifications of a Foreign University in the subject concerned, (b) Either a degree of the Doctorate standard or published work of high standard (c) Specialisation in the relevant branch of the subject concerned (d) Not less than 10 years experience of post-graduate teaching and experience of successfully guiding research or industrial or field experience.

- (ii) **Readers :** Two posts (Permanent) One in Pharmaceutics and the other in Pharmacology—sanctioned by U.G.C.

Salary Scale : Rs. 700-50-1250 (Likely to be revised).

Qualifications : (a), (b) & (c) : Same as for Professor with post-graduate teaching experience of

five years and three years experience of guiding research. Working knowledge of Hindi shall be a desirable qualification.

NOTE :—Applications for the post of University Registrar should be addressed to the Kulpati, University of Saugar, SAGAR (M.P.) direct.

**S.N. KAVEESHWAR,
REGISTRAR,
UNIVERSITY OF SAUGAR**

UNIVERSITY OF DELHI

Advt No Estab IV/29/75.

Applications on the prescribed form are invited for the following posts:—

1. Linguistics: One Professor
2. Law Centre No II (Faculty of Law): One Reader (Temp. upto 14.11.1977)
3. Modern Indian Languages.
 - i. One Lecturer in Manipuri
 - ii. Two Lecturers in Punjabi
4. Delhi University Library System.
 - i. Professional Assistants
 - ii. Library Assistants
5. Psychology.
 - i. One Technical Assistant
 - ii. One Sr. Lab Assistant
6. Botany:
 - i. One Technical Assistant
 - ii. One Junior Lab. Assistant (Both reserved for Scheduled Caste)
7. Engineer's Office:
 - i. Two Junior Engineers (Civil) (One each reserved for Scheduled Caste & Ex-service-man)
 - ii. One Assistant (Stores)

The scales of pay of the posts are:—

1. Professor: Rs. 1500-60-1800-100-2000-125/2-2500.
2. Reader: Rs. 1200-50-1300-60-1900.
3. Lecturer: Rs. 700-40-1100-50-1600.
4. Professional Assistant: Rs. 250-15-400 (likely to be revised)
5. Technical Assistant & Junior Engineer (Civil): Rs. 425-15-500-EB-15-560-20-700
6. Senior Laboratory Assistant: Rs. 380-12-500-EB-15-560
7. Library Assistant & Asst. (Stores): Rs. 330-10-380-EB-12-500-EB-15-560.
8. Junior Lab. Assistant: Rs. 260-8-300-EB-8-340-10-380-EB-10-430.

All posts carry D.A., C.C.A., and H.R.A. as admissible under the rules in force from time to time.

I. ESSENTIAL QUALIFICATIONS

(I) Professorship :

A scholar of eminence.

Independent published work of high standard and experience of teaching

Post-graduate Classes and guiding research for a considerable period desirable.

(2) Readership (Law)

Good academic record with first or high second Class Master's Degree or Law with a Doctor's Degree or equivalent published work.

Independent published work (in addition to the published work mentioned above) with at least 5 years' teaching experience in Honours/Post-graduate classes essential.

(3) Lecturerships

Essential : Consistently good academic record with a first or high second class (B+) Master's Degree or an equivalent degree of a foreign University in the subject concerned.

Desirable : (In order of preference)

i) A Doctor's Degree or Evidence of research work of equivalent standard in the subject concerned. (ii) Teaching experience of Degree/Post-graduate Classes.

Provided that if a teacher is not a Ph.D. at the time of his/her appointment and does not qualify himself/herself for the award of a Ph.D. Degree from a recognised University in the subject which is being taught by him/her within the period of five years from the date of his/her appointment or does not give evidence of research work of equal standard within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of five years till such time he/she fulfils the above mentioned requirement.

(4) Professional Assistants :

(i) First or second Class B.A./B.Sc./B.Com. or First or Second Class Master's Degree, and

(ii) First or Second Class B.Lib.Sc. or First or Second Class Post-graduate Diploma in Library Science.

(5) Library Assistants :

B.A./B.Sc./B.Com. Second Division; candidates will be required to pass the prescribed qualifying test in General English.

(6) Technical Assistant (Psychology)

Graduate in Science. Experience of working in a Laboratory.

(7) Senior Laboratory Assistant

(Psychology)

Higher Secondary with Science subjects. With previous experience of having worked in a Laboratory.

(8) Technical Assistant (Botany)

Graduate in Science, and experience in Lab. Techniques of the subject.

(9) Junior Laboratory Assistant

(Botany)

Matriculation or equivalent examination with Science subjects.

(10) Junior Engineer (Civil)

Must hold Diploma in Civil Engineering of a recognised Institution with at least 2 or 3 years' experience as a Junior Engineer/Overseer in an Institute of repute.

(11) Assistant (Stores)

B.Com. Degree with 3 years' experience in handling large scale Engineering stores.

(II) SPECIAL/DESIRABLE QUALIFICATIONS

1. Professor of Linguistics :

A Scholar of eminence with high academic qualifications in Linguistics and with a good knowledge of both Indo-Aryan and Dravidian family of Languages. Should have to his credit independent published work of recognised merit in Linguistics and Literature and possess considerable experience of teaching Post-graduate Classes and guiding research in Linguistics both in Historical and descriptive fields and long experience in the organisational activities of a University Department.

Knowledge of Sanskrit, Practical Phonetics, Lexicography and other branches will be considered as additional qualifications.

Knowledge of working of Departments of Linguistics in Europe and America will be desirable and constitute an additional qualification.

2. Readership in Law

Specialization in (i) Jurisprudence; (ii) Company Law including monopolies — Public Control of Business.

3. Lecturership in Manipuri

Minimum of 55% marks in M.A. Examination and 55% in the School Leaving and first Degree Examinations.

4. Lecturership in Punjabi

(For one of the posts)

Specialization in Modern Literature and Literary Theory, or Medieval Literature and Philosophy will be preferred.

5. Professional Assistants

Preference will be given to candidates with Master's Degree in Science and Social Sciences: i.e. Physics, Chemistry, Botany, Zoology, History, Political Science, Economics and Sociology

6. Library Assistants

i) Knowledge of Hindi and some other Modern Indian Languages;

ii) Knowledge of typing with a minimum current speed of 35 w. p.m.

7. Technical Assistant (Botany)

Experience of purchasing and maintaining records of Scientific equipment and other articles required in a Botanical Laboratory.

The prescribed application form can be had from the Information Office of University either personally or by sending a self-addressed envelope (5"x11") with postage stamps worth Rs. 1.95.

Selected candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Application (separate for each post) accompanied by attested copies of Degrees and other certificates and published research articles, etc. should reach the undersigned not later than 24th January 1976.

Applications for the posts of Professional Assistants and Library Assistants should be sent to reach the Librarian, Delhi University Library, Delhi-110007, not later than 24th Jan. 1976.

- NOTE**
1. It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases in respect of all posts on the recommendations of the Selection Committee.
 2. Convassing in any form by or on behalf of the candidates will disqualify.
 3. Candidates from outside Delhi for the posts of professor, Reader and Lecturers called for interview will be paid contribution towards travel expenses equivalent to 1½ single Second Class Rail Fare.
 4. Certain percentage of posts in the Non-teaching cadres are reserved for Scheduled Caste/Tribes and Ex-servicemen.

Delhi-110007
Dec. 24, 1975

K. N. Thusu
REGISTRAR

**CENTRAL INSTITUTE OF
EDUCATION
(UNIVERSITY OF DELHI)
33-Chhatra Marg,
DELHI-110007**

Applications are invited for the following posts in the Central Institute of Education on the prescribed form along with copies of certificates supporting the facts mentioned in the applications.

The selected candidates will be admissible for usual allowances like D.A., C.C.A., H.R.A. as are admissible under the Delhi University Rules in force from time to time.

The prescribed application form can be had from the office of the Central Institute of Education either personally or by sending a self addressed envelope with postage stamps worth Rs. 1.95.

Selected candidates will have to produce the original documents relating to their age, qualifications, experience etc. before joining the appointment.

Application accompanied by attested copies of the Degrees and other certificates and published research articles etc. should reach the undersigned not later than Saturday, the 31st of January, 1976.

Relaxation of any of the qualifications may be made in exceptional cases on the recommendations of the Selection Committee.

1. Lecturer in Education : (Against Leave vacancy for 2 years).
Scale of Pay : Rs. 700-40-1100-50-1600

(Contd. on Page 38)

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Aneja, Krishan. Random walk and rank order statistics. University of Delhi.
2. Gupta, Hira Lal. On certain integral equations and applications to problems of electrostatics and elasticity. Vikram University.
3. Panda, Jayanarayan. A few problems on flow on non-Newtonian fluids. Utkal University.
4. Panda, Tarini Charan. A few problems on flow of second order fluids. Berhampur University.

Physics

1. Bahal, B. M. A study of the reaction mechanism of (d, p) reaction on C^{12} and Be^9 at bombarding energies below 2-MeV. I.I.T., Kanpur.
2. Gupta, Ram Nath. Thermophysical properties of some polymeric and monomeric materials at ordinary and elevated pressures. University of Delhi.
3. Radhakrishnamurthy, Vishnubhotla. Studies on photoelectric jump ratios. Andhra University.
4. Sarma, Kanumalla Venkata Narasimha. Studies on external Bremsstrahlung generated by inhomogeneous beta radiation. Andhra University.
5. Vaidya, D B. A comparative study of magneto-optical effects and light scattering in dispersions of absorbing and non-absorbing particles. Gujarat University.

Chemistry

1. Aggarwal, Jyoti Swaroop. Chemical investigation of medicinal plants. Kanpur University.
2. Bhatt, U.I. Studies in geochemistry of clay-minerals, saline soils and waters. Gujarat University.
3. Bhoon, Yudhvir. Investigations on transition metal complexes of some 2-pyridylazo compounds. University of Delhi.
4. Brij Bhushan. Studies in the ion-exchange properties of hydrous ferric oxide and ferric phosphate. University of Delhi.
5. Dwivedi, Upendra Nath. Studies on retardation and inhibition in vinyl polymerisation. Kanpur University.
6. Gurudutt, K. N. A chemical study of santalin pigments and the components of *C. torulosa*. University of Delhi.
7. Jai Pal Singh. Physico-chemical studies on the complexometric behaviour of monothioptalimide and dithioptalimide with metals of first transition series. Kanpur University.
8. John, M. E. Molecular genetics and evolutionary trends of hemoglobins in the descent of caprinae. University of Poona.
9. Kulkarni, Shrikant Balkrishna. Synthesis of heterocyclic compounds. University of Poona.
10. Mahanta, Pradip Kumar. Investigation of chemical constituents of medicinal plants with special reference to the polyacetylenic compounds. University of Gauhati.
11. Mukhopadhyay, Jhuna. Studies on the colloidal properties of bentonite clay in relation to exchangeable cations. University of Calcutta.
12. Nigam, Rama Shashi. Corrosion of metals in organic media and its prevention. Kanpur University.
13. Pakarati Venkata Satya Prasad. Studies on the formation of chromium (III) complexes with polyamino carboxylic acids. Andhra University.

14. Pal, Ram Sewak. Studies in aryne chemistry. Vikram University.

15. Sarma, Brahmanandam. Studies on the solvent extraction of vanadium (IV) and vanadium (V) oxime complexes. Andhra University.

16. Shah, M.V. Studies in ground water resources and hydraulic conductivities of soils (North Gujarat, including infiltration rates). Gujarat University.

17. Shukla, V.A. Synthesis of chemical reagents for modification of cellulose. Gujarat University.

18. Sreeramachandra Murty. Studies on the solvent extraction of iron (III) in the presence of antipyrine and some anions. Andhra University.

Earth Sciences

1. Didwal, Rajinder Singh. Petrological studies of the precambrian of the Himalayas in the Doda District of Jammu and Kashmir State falling between longitude $75^{\circ} 30'$; $75^{\circ} 40'$ E and latitude $33^{\circ} 3'$; $30^{\circ} 10'$ N. University of Jammu.
2. Phadke, Anant Vithal. Geology of the Ramakona area, Chindwara District, Madhya Pradesh. University of Poona.
3. Saxena, Gyana Nand. Stratigraphy and tectonics of the Gwalior series, around Gwalior, M.P. (India). University of Saugar.

Engineering & Technology

1. Banthiya, Narendra Kumar. Convection and its interaction with radiation for a semi infinite plate. I.I.T., Kanpur.
2. Basak, P. Non-darcy flow in porous media and its applications to transient problems. I.I.T., Kanpur.
3. Ghosh, Manju. Vibration problems in elastic-media. University of Calcutta.
4. Gupta, Ratan Lal. Performance of radial flow vaneless diffusers with diverging walls. I.I.T. Delhi.

BIOLOGICAL SCIENCES

Anthropology

1. Gharote, Manohar Laxman. Physical fitness in relation to the practice of selected yogic exercises. University of Poona.

Biochemistry

1. Chakrabarti, Kaveri. Protein and vitamin C metabolism under low oxygen tension. University of Calcutta.
2. Chaudhuri, Semiranjan. Studies on brain glutaminase. University of Calcutta.
3. Dasgupta, Somsankar. Biochemical studies on Forssman Hapten. University of Calcutta.
4. Ghosh, Sulekha. Studies on integrated role of pantothenic acid and ascorbic acid on steroidogenesis. University of Calcutta.
5. Sarkar, Dwijen. Protein metabolism in developing rat brain. University of Calcutta.

Botany

1. Behera, Narayan. Occurrence and distribution of microfungi and bacteria in Delhi soils. University of Delhi.
2. Dakwale, Ramchandra N.A. study of biogeochemical cycles in grassland ecosystem. University of Saugar.
3. Dasgupta, Bishnupriya. Characterization of copper toxicity in seeds during germination. University of Calcutta.
4. Gaikwad, Ymdav Bhaurao. Studies in air spore and taxonomy of pyrenomycetes. Marathwada University.

5. Khandal, Bhairavi. Studies on the tertiary flora of India with special reference to the microflora of the Himalayan foot hills. University of Calcutta.

6. Rai, R. Stephen Vinaya. Physiological studies on rice. Utkal University.

7. Ursekar, Makarand Sadashiv. Studies in soil and rhizosphere fungi. University of Poona.

Zoology

1. Chincholikar, Leela Nanarao. The cestode parasites of fishes and amphibians. Marathwada University.

2. Deshmukh, Purushottam Bapurao. Studies on some protozoan parasites of birds. Marathwada University.

3. Jagdish Bahadur. Studies on the central and peripheral nervous system of *Palilio demoleus-demoleus* (L.) with special reference to changes in the nerve tracts within and outside the ganglia during metamorphosis. D. Litt. Vikram University.

4. Jehra. Histological and histochemical studies on the ganglia of ventral nerve-cord of certain insects. Vikram University.

5. Joshi, Satish Chandra. Studies on the standard routine and active oxygen consumption of fishes. Vikram University.

6. Soota, Tulsi Dass. Studies on the nematode parasite of vertebrates of India. University of Calcutta.

7. Surendra Prasad Singh. Studies on the digentic trematodes of fishes and amphibia of Bihar. Magadh University.

Medical Sciences

1. Charles, A.K. Studies on cobra venom neurotoxin. University of Delhi.

2. Kapoor, Malvika. Measurement of organic brain dysfunction. Bangalore University.

3. Kotichintala, Sitaramachandra Rao. Central organisation of a viscerosomatic reflex. University of Delhi.

Agriculture

1. Arya, Harpal Singh. Dynamics of leadership and social change. Kanpur University.

2. Bakhetia, Datta Ram Chandra. Standardization of screening technique for aphid-resistance in rape seed and mustard. Punjab Agricultural University.

3. Balaraman, K. Studies on strains and strain interaction in Citrus tristeza virus. University of Agricultural Sciences, Bangalore.

4. Barthakur, Hari Parsad. Formation of inorganic phosphorus and its availability in rice field soils in relation to chemical and microbial activities. University of Gauhati.

5. Gurdev Singh. Synthesis of single cell protein from wheat straw and its fractions. Punjab Agricultural University.

6. Krishnan, P. Effect of crop rotations and organic matter additions on the availability of phosphorus in soils. University of Udaipur.

7. Mehta, Ugam Raj. Response of chlorotic moong (*Phaseolus aureus*) to select sources of sulphur and micro-nutrients on calcareous soils. University of Udaipur.

8. Ramesh Chander. Biology of sorghum shoot fly, *Atherigona soccata rondani* (Diptera: Muscidae) with reference to the phenomenon of antibiosis. Punjab Agricultural University.

9. Shukla, Jai Shankar. Studies on the parasitism, epidemiology and control of helminthosporium leaf blight of maize, *Zea mays* (L.). Kanpur University.

10. Sohi, Amrik Singh. Taxonomy of the typhlocybines (Homoptera: Cicadellidae: Typhlocybinae) of North-Western India. Punjab Agricultural University.

11. Zende, Govind Kashinath. Studies on the effect of oxidation of organic matter on the release of nutrients in the soil and subsequent effect of this increased supply of nutrients on the uptake, juice quality and sugarcane yield. Mahatma Phule Krishi Vidyapeeth.

Veterinary Science

1. De, Barindra Nath. Studies on liveability of spermatozoa of Indian and foreign breeds in relation to different semen diluents. Magadh University.

2. Krishnamurti, U.S. Genetics in blood potassium, haemoglobin and transferrin types in Nilgiri sheep, Merinos and their crosses. Tamil Nadu Agricultural University.

3. Nauriyal, Dinesh Chandra. Studies on clinico-biochemical and therapeutic aspects of rumen dysfunction with particular reference to rumen acidosis in buffaloes and cross-bred cattle in Punjab. Punjab Agricultural University.

SOCIAL SCIENCES

Psychology

1. Thakar, Anjali Sitaram. Attitudes of late adolescent and early adult college females towards marriage and related problems. University of Poona.

Sociology

1. Chowdhury, Anwarullah. A study of the stratification pattern of a village in Bangladesh. University of Delhi.

Political Science

1. Agnihotri, Ganesh Prabhakar. India's foreign policy during Nehru era: A study in Sino-Indian relations from 1949 to 1962. Shivaji University.

2. Chandrasekhara Rao, P.A. Fiscal and monetary policy for the promotion of exports in West Germany 1948-1958. Jawaharlal Nehru University.

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A list of select articles culled from Periodicals received in AIU Library during December 1975

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*Opinions expressed in the articles
and reviews are individual and do
not necessarily reflect the policies
of the Association.*

Editor : ANJNI KUMAR

1st Annual Session of AIU

The fifty-first annual meeting of the Association of Indian Universities was held at Sri Venkateswara University, Tirupati from 9th to 11th January, 1976. Besides representatives of the Ministry of Education, U.G.C., N.C.E.R.T., I.C.A.R., Indian Adult Education Association, sixty Vice-Chancellors attended the session. Shri S. Obul Reddi, the Governor of Andhra Pradesh and the Chancellor of Sri Venkateswara University, in his inaugural address emphasised the need for formulation and implementation of a national policy on higher education. He said that from the point of view of national integration, balanced regional growth and overall social, cultural and economic development of the country, education plays a crucial role. The Association can play a very important and significant role in the evolution of such a policy, for achieving the economic programmes as well as the social and cultural revolution in the country. Universities are best fitted to play the role of bringing about inter-regional understanding and thus creating a climate in which the Indian culture could flourish and make a contribution to the world culture.

The universities prepare students for entry into society with a scientific and rational outlook. The importance of this aspect of university work has assumed a special significance for us. The universities in India have also a special role to play in bringing about the national and emotional integration. This could be achieved through many ways: teacher and student exchanges, exchange of ideas and emotional experiences, travels of students and teachers in the country.

The Chancellor referred to the new pattern of education and the problems of implementation in universities and colleges. He said that this pattern is a result of a careful consideration over a period of years by educationists. The fifteen years training programme has been recommended by the various education commissions appointed from time to time. All the three universities in Andhra Pradesh have introduced the three-year degree courses and the system is working very satisfactorily in the country.

Mr. Reddi said that he was happy that a special seminar has been organised by the Association to consider the various problems of implementation of the new programme. He hoped that the universities in other parts of the country would also adopt this system. But he wanted that the impact of this new pattern on professional courses like engineering, technology and medicine should be examined in some detail. There is a point of view that the education of these professional courses should be reduced with the implementation of 10+2+3 pattern of education. Engineering, technology and medicine are science based courses and with the phenomenal pace at which developments are taking place in these fields, the science contents of these courses may have to be strengthened. Without adequate background in science and mathematics these professional disciplines lose much of their significance from the point of view of research and development. So he wanted the

(Contd. on Page 8)

INCOMPETENT TEACHERS

The Case For Periodic Assessment

AMRIK SINGH

How is it that, unlike quite a number of Government servants, no teacher has been compulsorily retired? Is it because everyone in the academic world is competent, or that there is hardly any distinction between good and bad teaching?

The issue is not all that simple. If a Government servant is made to retire before his date of superannuation, he has his pension to fall back upon. Premature retirement is certainly a form of punishment but it does not reduce the individual to destitution. This can happen in the case of someone working in a university or a college. Hardly 5% of teachers are entitled pension; others are allowed to subscribe to the contributory provident fund (not all teachers are covered by this scheme). In other words, if a teacher is made to retire prematurely, he will undergo a double loss: he will get a much smaller amount of provident fund money than he would have got had he continued in service and, of course, his earning career will come to an end. This is a serious disability. The point at issue is not the merits or otherwise of pension or provident fund: the question is: What is to happen to a middle-aged person whose professional career is terminated at a point when he can neither go forward nor backward?

Academic Delinquent

Yet the fact remains that a large number of teachers do not work sincerely; bluntly, they may be described as academic delinquents. For more than decade now, a large number of those entering the teaching profession have been unsuitable in many ways. They got into the profession merely because the expansion of education during the last two decades far outstripped the supply of qualified teachers. It would be unfair to accuse this category of teachers of dishonesty: a more valid reservation would be that they just do not have the requisite competence.

The rest, however, belong to a different category. They possess the ability but, in the lax atmosphere which pervades most of our educational institutions, they tend to lose interest in their work. Indeed, some of them begin well and work with enthusiasm. But, within a few years, many of them discover that to get on in their profession they have to acquire a different sort of quality. In respect of these teachers, what is required is a different ethos of work. While in other professions the ethos of work has to some extent changed, the sad truth is that in our colleges and universities the old lackadaisical attitude persists.

When it comes to the level of readers and professors, the situation is even more disquieting. Some of

them are good; a few highly competent. But a substantial number are sub-standard, by whatever yardstick one may measure them. They belong mostly to that category of teachers who, to begin with, were academically sound. However they manage to outstrip their peers partly because they can manoeuvre better and partly because by and large they satisfy the minimum standards of competence expected of people at their level. Once installed, no one ever bothers to ask how they are performing. There is no system of a periodical review of performance.

The State Governments worry a great deal about the financial accountability of universities, but it never seems to occur to them that equally, if not more, important is their academic performance. The question of academic accountability has yet to be recognized. Within the university the atmosphere is hardly conducive to any attempt at all at academic accountability. Thus, at one level there is the lack of concern about how people perform; at another there is, to put it somewhat differently, a conspiracy of silence. The general assumption seems to be that it is no one's business to sit in judgment on others. Extensions beyond the age of retirement were being granted more or less as a matter of routine, whether or not a teacher was deserving. Retirement at 60 has now been made mandatory by the UGC and even those who deserve an extension will have to retire at 60.

Dead Wood

What is to be done to get rid of the dead wood in the academic world in a rational and just manner and without affecting the morale of teachers? If incompetent people continue to occupy positions they have attained through questionable means, it would be idle to expect any real improvement in academic standards. Besides, they will do their best to prevent competent people from getting the recognition due to them: indeed, this is already happening on such a large scale that the biggest obstacle to academic reform is the fossilised mass of mediocrity.

There should be no question of retiring anyone at the lecturer's level. But those who do not measure up to the demands of the job should be persuaded to try to improve their knowledge as well as their teaching ability. At the level of reader and professor, a system of periodic assessment, say every five years, should be introduced.

Assessment should be on the basis of self-assessment by every teacher, detailed guidelines for which
(Contd. on page 21)

PROFESSIONAL FILE

THE FACULTY RECRUITMENT—1

R. P. PURI

The recruitment process gets under way as soon as a requisition is received from the Dean of a Faculty/Head of the Department asking the Registrar's Office to advertise a certain teaching position; and it should be examined to determine if a vacancy exists. It is not always, and in all cases, true that the posts provided for in a University's financial estimates have formal sanction either of the University Grants Commission or of the State Government concerned. The provision for faculty positions made in the budget estimates does not necessarily mean that they have been sanctioned unless prior specific approval of the competent authority has been obtained. It is thus important to make sure that financial provision, supported with formal sanction, exists for the posts proposed to be filled up.

The next step is to prepare an advertisement. The points that need to be stated in it should all be noted down somewhere. This reduces to the minimum the possibility of omitting something of significance. It will also ensure that all the relevant details concerning the Faculty position proposed to be advertised are brought to the notice of the prospective candidates. The advertisement should, among other things, include information relating to name of the post, scale of pay and allowances, qualifications both essential and desirable; benefits: Medical, Contributory Provident Fund-cum-Gratuity or General Provident Fund-cum-Pension-cum-Gratuity, Housing; age limit; any relaxation in regard to age and qualifications in favour of candidates belonging to Scheduled Caste/Scheduled Tribes; whether the post is permanent or temporary and the period after which it would be made permanent; Class of rail fare admissible; last date for receipt of applications; whether the application is to be submitted in the prescribed form; whether there is an application fee to be paid and, if so, the mode of payment; size of the self-addressed stamped envelope to be forwarded while asking for the application form; and the name of the official to whom the communications should be addressed.

As far as possible, applications should be invited on a prescribed form. This is of considerable help not only in preparing summaries of the curriculum vitae of candidates but also in ensuring that candidates furnish such information and under various heads as the university desires. If, on the other hand, applications are invited on plain paper, candidates may omit to furnish information which is of significance and give such other particulars as are unimportant from the university's point of view. The application form should call for precise information under well-defined heads, for it would ultimately be on the basis of the

particulars submitted in the applications that the shortlisting of candidates is to be done.

It is always helpful if names of more than three persons are included in the panel for the post of Professor and the names of more than two experts for that of Associate Professor/Assistant Professor. This will ensure that if any of those invited in the first instance is not able to attend the meeting of the Selection Committee concerned for some reason or other, no time is wasted in finding a suitable substitute because the next person on the panel can be immediately approached. Otherwise, the whole process of getting the names approved first by the Academic Council and then by the Executive Council, will have to be repeated, and this means inordinate delay in convening a meeting of the selection committee.

After the Executive Council has approved the panels, communications can be sent to the experts, requesting them to accept membership of the selection committee. While communicating with them, it would be desirable to suggest to them at least two dates, preferably consecutive ones, and request them to indicate if both the dates suit them, so that the meeting may be fixed on either of the two dates. If only one date is suggested, it may so happen that it suits one expert and not another. The result will be that the whole process of correspondence will have to be repeated. Undoubtedly, the convenience of the Visitor's nominee would be obtained before approaching the other experts. Every effort should be made to ensure the presence of the Visitor's nominee at the meeting.

After all the experts have confirmed that a certain date is convenient to them, confirmatory telegrams should be mailed to them immediately so that they may make the necessary travel arrangements in time. Confirmatory telegrams should invariably be followed by letters re-stating the date and time of the meeting as well as its venue.

If, at any given time, several Selection Committee meetings have been scheduled, it is advisable to make some kind of a statement in respect of each post, setting out therein the date and time of the meeting of the Selection Committee, the names of its members, venue etc., so that the possibility of a mistake being occurred is reduced to the minimum. Care should be taken to incorporate promptly into this statement any changes that may take place in the schedule.

The names of the candidates who have applied for the various posts should be entered in a separate register. Entries of their names should be prefaced with such columns as Faculty position, Faculty/

Department, last date for receipt of applications, number of applications received, number of candidates invited for interview, the name of the candidate selected for the post, and folder number i.e. the number of the folder in which the applications of the candidates both of those invited for interview and of those rejected are to be kept at the end of the meeting. Applications of candidates will bear consecutive numbers and these will be entered in the register in the same order.

A day or two after the last date fixed for the receipt of applications, a list of the names of the applicants should be forwarded to Dean of the Faculty or the Head of the Department, as the case may be, along with the applications for shortlisting. The last date fixed for the receipt of applications should be adhered to except in exceptional circumstances. The one who is to shortlist the candidates should invariably be requested to indicate the criteria adopted in selecting candidates for the interview. It will be better if these papers, before being sent up to the Vice-Chancellor, are scrutinised minutely in the Registrar's Office to ensure the correctness of shortlisting.

Candidates coming from distant places require adequate time to make their rail reservations. It would, therefore, be desirable to inform such candidates telegraphically of the date and time of the interview. The telegrams should be followed by letters. The telegrams should also state whether any rail fare is permissible and, if so, whether it is necessary to produce any railway receipt. Of course, the letters inviting them for interview will contain more information about the date, time, venue, etc., of the meeting. If candidates are also required to bring any particular papers along with them, this fact should also be made known to them in advance. It is desirable to prepare two sets of letters, one for local candidates and the other for outside candidates.

After mailing these communications to the candidates and to the members of the Selection Committee, the whole correspondence should be reviewed in order to ensure that there is no disparity in the details of the date, time, etc. as communicated to all concerned. After submitting their applications, sometimes candidates make changes in their mailing addresses. All such changes should be incorporated promptly into their respective applications. All communications received in this regard should be kept in the correspondence folder.

It is incumbent upon the office to give full information to the candidates invited for interview about the venue of the interview as well as the person with whom they are to get in touch on their arrival. This will spare them from making unnecessary enquiries on reaching the Campus. Similarly, proper arrangements should be made to receive such of the members of the selection committee as are visiting the university for the first time. Furthermore, if outside members have asked for transport and accommodation to be arranged, these should be provided and the necessary confirmatory communications should be mailed to them promptly. The person dealing with these matters

should have timely information about the arrangements to be made by him and of any changes that may occur in the schedule of the members of selection committees.

A number of things have to be done between now and the date fixed for the interview. First, a summary of the curriculum vitae of the candidates who have been invited for interview is to be prepared. The summary should give all the relevant information. The most important facts which the members of the Selection Committee should know about the candidates are: age, qualifications, experience (in teaching and research) research projects undertaken, publications, knowledge of foreign languages, visits abroad, present pay drawn, etc. While giving information about qualifications, we should begin at least with the Bachelor's Degree, followed by the subjects taken, percentage of marks obtained, class or division secured, the name of the university, marks obtained, class or division secured, the name of the university and the year of passing the examination. If a candidate has secured the first, second or third division in any university examination, this should be specified. As for publications, only those should be included in the summary as have come out of the press or released. There is of course no bar on listing those books, monographs which have been sent to the press. Similarly, those articles should be included which have already appeared. If any book or article has been produced in collaboration, it should be noted as such.

The first page of the summary of the curriculum vitae should indicate the date, time, and venue of the meeting as well as the Faculty/Department for which the recruitment is made. The qualifications printed in the advertisement should also appear on this page for the ready reference of the members. The names of the candidates invited for interview should appear in the alphabetical order. The original applications of the candidates whose particulars are to be mimeographed should be kept in a separate file in the same order.

The Finance Branch of the university should have advance intimation regarding the arrangements they have to make for making cash payment of TA/DA to the members of the selection committee and the candidates immediately after the interview. The number as well as the places from which they are coming (including authorization for air travel if any, in respect of the members of the committee) should be communicated to the Branch in time.

By the time the meeting comes to a close, the draft minutes of the meeting should be ready. These should state the composition of the selection committee, the members present, the names of the candidates who were considered *in absentia*.

While considering the recommendations of the selection committee the Executive Council of the university has also to decide the initial salary to be paid to the selected candidate. This is an important matter and it is necessary to ensure uniformity of practice in this matter in all universities. Otherwise each university will frame its own rules and then

ultimately create an embarrassing situation for the grant-giving agencies. The University Grants Commission has, therefore, prescribed certain norms concerning grant of a higher starting salary. Before going to the meeting of the Executive Council, the Vice-Chancellor who is the Chairman of the meeting, should be supplied with a statement showing the salary particulars of the existing faculty members, at least, in the Department concerned. This information will enable him to make recommendations to the Council on fixation of the basic salary to be offered to the selected candidates.

After the meeting of the selection committee is over, its recommendations should be placed before the Executive Council for its consideration and approval. In order that this item is included in the agenda of the next meeting of the Council, a timely intimation in this regard, should be sent to the person concerned in charge of Council work. If, however, there is still some time for the Executive Council to meet, and if the appointment cannot wait till it meets, the Vice-Chancellor may, at his discretion, have the recommendations of the selection committee circulated to the members of the Executive Council for obtaining their approval.

The minutes of the selection committee should be pasted in a register maintained for the purpose after the meeting of the Executive Council is over.

The applications of the candidates who were invited for the interview, including the applications of those who were not selected should be kept in a separate file, together with a copy of the advertisement and a copy of the mimeographed curriculum vitae that had been placed before the members of the selection committee. The applications of the candidates whose names are borne on the panel should also be kept in a separate file, so that as and when required they become available without loss of time.

The file containing the rejected applications should bear on its face some suitable indication of the Faculty concerned (e.g. for the Faculty of Science, F/Sc.; for the Faculty of Arts, F/Arts, etc.), the Department, the name of the post and the serial number of the file as entered in the register of applications.

When there are a number of things to be done in respect of any job, it becomes really difficult, if not impossible, to keep track of what has been accomplished and what remains to be completed. In this situation, it becomes essential for its smooth execution, to prepare some kind of checklist so that the possibility of omitting something or not doing the job in time is reduced, if not eliminated. Accordingly, a suggested checklist in respect of the work connected with the Faculty Recruitment is given below:

CHECKLIST

- | | |
|----------------------------|--------------------|
| (i) Advertisement No. | (ii) Post |
| (iii) Department | (iv) Faculty |
| (v) Interview: | (vi) Venue |
| (a) Date | |
| (b) Time | |

1. Have kept: (i) two copies of the advertisement in the Master Folder in which copies of all advertisements are kept in a serial order; (ii) spare copies in a separate folder:
Status of action
2. Have forwarded applications for shortlisting, together with a list thereof and a copy of the advertisement:
(a) To
3. Have pasted one list of applications in the Register of Applications for Faculty Positions: (There should preferably be a separate register for each Faculty).
4. Have received back all the applications duly shortlisted. (If the applications are not received back within a reasonable time, a reminder is to be issued):
5. Have obtained the approval of the Vice-Chancellor for inviting the shortlisted candidates for interview as well as his approval of the criteria adopted for the purpose:
6. Have sent letters/telegrams to the candidates
(a) Telegrams mailed on:
7. Have sent letters (telegrams to the members of the selection committee):
(a) Letters on
8. Have rechecked the whole correspondence both with the candidates and members of the selection committee.
9. Have asked the official concerned to arrange for tea/cold drink etc., and the Finance Branch to arrange for payment of TA/DA both for the candidates and the members of the selection committee. In the latter case, only the number and places from where they are arriving, are to be communicated.
On
10. Have prepared a summary of the particulars of the candidates invited for interview. (This should be ready at least two days before the date of the meeting, if it is to be delivered to the members on the day of interview. If the particulars are to be supplied to them in advance, then these should be got ready immediately after the meeting is scheduled).

Work to be done at least one day prior to the date fixed for the meeting

11. (a) to give to the Vice-Chancellor:
 - (i) original applications; and
 - (ii) two copies of the summary of the particulars of the candidates.
- (b) to keep ready papers for the members of the selection committee;
- (c) to ensure proper arrangements for receiving members of the selection committee as well as candidates;
- (d) to make sure that there is transport for members of the selection committee, both for coming and for going back, that accommodation has been arranged for such members as have asked for it, and that the staff car, if available, is reserved for this work;
- (e) to remind the Finance Branch about the payment of TA/DA., including conveyance charges to local members;

- (f) to ensure arrangements for refreshment;
- (g) to ensure presence of the local members by reminding them of their appointment at the University;

- (h) to make arrangements for lunch/dinner, if required.
12. Have requested the person concerned to include in the agenda of the Executive Council an item regarding recommendations of the selection committee.
13. Have pasted the Minutes in the register (after the Executive Council meeting is over).
14. Have put the applications (except of those candidates who have been selected and of those whose names have been kept on the panel) in a separate folder.
15. Have put in a separate folder the applications of the candidates whose names have been kept on the panel.

(Contd. from Page 3)

seminar to specially go over this question in some depth.

Shri I.J. Patel in his presidential address referred to the financial difficulties of the universities. In view of the limited resources available to the universities he pleaded with the universities to examine and scrutinise their spendings closely. He said that the physical and human resources available to the universities should be used to the maximum. There is a scope for increasing the productivity by utilising our buildings and equipment to a much greater use. At the same time the teaching capability should also be improved. The balance between teaching and research has to be found. He said that the teaching be valued *per se* and not as an adjunct to research. He also referred to the problems of examinations and introduction of the grading system in the universities and hoped that the University Grants Commission as well as the Association of Indian Universities would come forward to help the universities to establish some kind of a Research and Implementation Cell so that the teachers are re-trained in the use of new techniques. A good deal of resistance to the changes sought to be introduced comes from people who are accustomed to the old system. They naturally find it difficult to accept the new system and therefore a sustained campaign of new education is called for. The Association is going to assist in this campaign by a unique study which is under preparation.

Shri Patel referred to the necessity of improving our standards in sports. The Sports Board of the Association is organising about fifty inter-university tournaments every year. He hoped that larger number of universities would come forward to organise these tournaments.

Prof. K. S. Murty, Vice-Chancellor of Sri Venkateswara University while welcoming the members of the Association to Tirupati said that about 15000 people come to adore Lord Vishnu

daily and about 10 to 12 crores of rupees is the annual income of the temple which is utilised for the promotion and spread of spiritual and ethical values, knowledge and culture, and alleviation of suffering.

At the annual meeting of the Association, K.S. Darbhanga Sanskrit Vishwavidyala, Cochin University and the Bidhan Chandra Krishi Vishwavidyalaya, were admitted to the membership of the Association. Mithila University, Konkan Krishi Vidyapeeth, Marathwada Krishi Vishwavidyalaya, Kerala Agricultural University, Bundelkhand University and Gurukul Kangri, were allowed to participate in the activities of the Sports Board of the Association. The universities of north-eastern hill region were permitted to organise the tournaments in their zone so that they could participate in the national tournaments without wasting much time over their travel. The establishment of the youth hostels by the Union Ministry of Tourism was welcomed as a welfare measure for the students and would help in achieving national integration.

The recommendations of the Madras Workshop on Grading were commended to the universities. The problems of implementation of new pattern of education was also discussed and the situation prevailing in different parts of the country was reviewed. The universities were requested to adopt the new pattern with adequate preparation as early as possible. The Association also suggested that in the colleges and universities there should be at least one thousand teachers-students contact hours in a year. However depending upon the needs of the various faculties this may be spread over a period of not less than 200 to 220 days during an academic year.

The invitation of Tamil Nadu Agricultural university was accepted for holding the Fifty-Second annual session of the Association at Coimbatore.

Prof. S.N. Sen, Vice-Chancellor, University of Calcutta, was elected as the President of the Association for the year 1976-77.

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QUESTION BANKS

At First Degree Level Subjects For Madras University

V. Natarajan

Introduction

In a recent document "Examination Reform—A Plan of Action"¹ circulated to all the Universities in the country, the University Grants Commission has very strongly recommended that the Boards of Studies established by the Universities should not only frame "syllabus" but also a "Bank of questions" for each of the courses. It is time that the various Boards of Studies tried to expand their syllabi in various subjects into meaningful objectives, produce or help to produce resource materials both for students and teachers including evaluation materials. This is in keeping with the Report of the Education Commission² (1964-66 p. 290) where it says "examination reform has become crucial to all progress and has to go hand in hand with the improvements in teaching". Amrik Singh³ strongly feels that priority should be given to improvements in teaching in Universities and that it is wrong to suppose that changes in examinations will automatically produce desirable changes in University teaching. It is wise however to effect changes in both teaching and testing and the whole problem is looked at in a comprehensive way.

A dozen Universities⁴ have been selected to implement the plan of "Examination Reform" and it is therefore necessary for these Universities to go into the recommendations contained in the document, isolate the reform proposals that have to be concerned with the University in terms of changes in its "structure" viz. syllabus, curriculum, examination, administrative machinery etc. Since most of the reform proposals centre round the teachers,

they have to be prepared and trained to implement these proposals of reform. Equally important to the document as such is a blueprint to put these reforms into practice. Some Universities⁵ and other bodies⁶ have already started developing "Question banks".

Question banks making full use of the accumulated experience of teachers and examiners, represent an important potential contribution to the process of examining. In our country, the last decade or so has seen a marked desire for improvement in examining; perhaps characterized chiefly by the evolution of improved school exams by NCERT and other agencies in the states and research into and concern for increased technical efficiency. The need at this time to consider and discuss such possible innovations as question banks is particularly strong in view of the increasing load which the existing pattern of examining must bear; the need is caused by rising numbers taking various exams, widening range of examinable subject matter, the need for more frequent revision of syllabi, the breaking down of traditional subject boundaries, the movement towards a greater degree of involvement by teachers in the examining process and the continuing use of examinations for course evaluation, pupil diagnosis educational guidance and selection. At the same time the demands to examine with justice and to maintain and improve standards are as strong as they have ever been and may well become stronger as a larger proportion of the population comes to be directly affected by examinations. Therefore the task of examining which already involves considerable educational and administrative effort will almost inevitably grow more diffi-

cult and complicated in the years ahead. All this adds vigour and point to the search for improved methods of examining and compels careful consideration of the role of "question banks".

The main objective of this paper is to propose a plan of action to build up Question Banks in our country through coordination of different organisations and Universities avoiding duplication of efforts, piecemeal work and adhoc decisions of subjects. The author, after discussing Question banks suggests practical ways of building up and using these in the present context and thus maintain the dynamic concept of Question Banks.

What is a Question Bank

Question banks in the sense used in this paper contains questions about which there is available some specific information usually of a statistical nature; in this sense they differ from question banks already built up by teachers and examiners. The main function of a Question Bank, if one were established would be to make available to teachers and examining bodies such questions together with associated information that they might wish to use in preparing their own tests and examinations whether during or at the end of a course. Individual questions would be selected on the basis of experience gained in using the questions "in the field". Another task of a question bank would be to help provide an estimate of the degree of comparability of exams produced in this way.

The process of producing questions for a question Bank might well result in a clarification of the aims and objectives of the examination. This could lead to the specification of subject objectives in fairly precise and detailed terms. It would be mistaken to suppose, however, that a Question bank would consist solely of those questions in which the course objectives can be accurately defined and measured. This would be an unnecessarily narrow interpretation of the way in which a ques-

tion bank would work. A Question Bank could clearly be composed of all kinds of questions now being used for internal and external assessment, ranging from the "open" or "essay type" to the "closed" or "objective" type questions. It is very necessary that a question bank must contain a large number of questions/items in a particular subject.

The Examination Bulletin 37 sums up about Question Banks as :

"A Bank of items (Questions) of known Technical values can be built up for future use. It might, in practice, prove of value to arrange for item construction to be a more or less continuous process. The construction of written papers can then become a matter of judging the suitability of items of known Technical value from a Bank of items. Items can be weeded out as out of date over a period of time. Further it can be said that new Questions should be tried out and statistical evidences for its facility, discrimination ascertained. It is absolutely necessary that the Banks would have to be large to be of value".

Plan of Action of Madras University for Question Banking :

In the present plans of the Madras University are an indication that "Question Bank" as a part of examination reform would be in operation from 1977 for Pre-university and First degree level subjects. By that time, the Boards of Studies in these different subjects will be prepared for this work. Dr. Malcolm S. Adisesiah, the progressive and dynamic Vice-Chancellor of the University of Madras initiated a 3 day meeting of various Chairmen of Boards of Studies in different subjects to discuss issues relating to implementation of initial Question Banks in these subjects. The services of the Project Officer (Exams.) of the AIU were placed at the disposal of the University of Madras to briefly introduce the basic concept of Question Banking, to suggest modus operandi

for building up initial Banks in these subjects with the help of an approach paper on "Question Banks : Their use in Indian Examinations" together with a suggested Plan of Action for building up Question Banks. The Plan of Action suggested included the various stages of building Question Banks, the composition in terms of types of questions/items, the storing, using and analysing of the questions/items and finally time scheduling of various activities.

It was possible through individual discussions with chairmen of different boards to discuss issues related to their own Banking project. Some of the basic issues thrashed out are :

1. Should the Question Bank, if one were established, be centralised at the university or be decentralised at every college ?

Question Bank, when established, will be centralised at the university for purposes of making university examination papers. For this purpose the questions/items must be typed on specially designed cards and stored on Cardex trays. Paper setter will be called to the Headquarters and asked to set the paper with an already prepared Blue print. This saves a considerable amount of time spent on paper setting.

To some extent, the Question Bank must be decentralised in the sense that 20% sample must be cyclostyled and given to individual colleges (teachers and students) so that there can be familiarity. Every year this 20% can change. The result is that at the end of 4 to 5 years all the items/questions are tried out in the field and statistical quantities like Facility value and Discrimination index are worked out and reported to the University Central Unit for incorporating on the cards.

2. Should the Boards of Studies be made responsible for Question Banking as well or should there be a separate machinery for the same ?

Boards of Studies must be made responsible for building

Question Bank because only then it will be possible to keep a unity of functions of Teaching/Learning/Testing. Each Board has been asked to submit a Plan of Action which will be consolidated by the University.

3. Should the Bank be made public (to teachers and students) or should a portion only be made public while the rest (most) of it kept in the Controller's office in secrecy ?

A 20% sample of the total questions/items must be either cyclostyled or printed and distributed to teachers and students. This will help in two ways : Firstly, students will get familiar with the type of questions items they will have to face and secondly (most importantly) it will be possible to field test these items on the population and work out Facility value and Discrimination index in order to decide, to retain, improve or reject the item/question. Every year this 20% may change so much so in about 5 years there is a reasonable chance that the initial bank has been put to trial and information incorporated.

4. Should the Bank of items/questions be used only for setting university examinations or should it be used for course work internal assessment ?

The Bank must be used initially for setting university examination papers and then extended to course work internal assessment in individual colleges. The 20% sample will serve initially for internal assessment.

5. Should the analysis of performance of candidates on these items/questions be done as a part of Controller's work or should there be a separate machinery for it ?

Even though a separate machinery like Examination Unit (a complementary thing to Controller's office) is highly desirable, at this point in time, the question of analysis can be handled by the Controller's unit with the help of individual examiners in the case of university examinations and

teachers in the case of internal assessment.

6. Finally should the Question Banks be stored in Cardex trays on cards initially or should be memory of the computer be used for storing and retrieving. The memory disc pack of a digital

computer can take as many as 1,20,000 questions/items.

A general agreed pattern of Plan of Action for preparing Question Banks as a result of discussion with most of the Chairmen is as follows :

Stages	Time Schedule	Remarks
1. Boards of Studies Meeting to decide pattern of Question paper-modus operandi for Question Banking	1 day	The Board Members may be initiated into issues involved with an expert on evaluation briefly introducing them. A suggested pattern of question paper is some what like this 1 Essay 20 marks 30 minutes 20 short answer 60 marks 120 minutes 20 Multiple choice 20 marks 30 minutes. The pattern need not be rigid, it can differ from subject to subject.
2. Initial Banking with the help of past examination papers and teacher sources	2 days	Group discussion with a check list of criteria for prevalidation of questions/items.
3. Question Banking project Workshop with 5 to 6 teachers per subject and for a number of subjects at one centre	10 days	Lectures, illustration, practice sessions, group discussions. To produce the requisite number of questions/items for the bank. If each question paper is to contain (say) 1 essay; 20 short answer and 20 multiple choice then the initial bank may contain (say) 20 essay questions, 400 short answer questions and 400 multiple choice questions.
4. Screening, selecting Questions/items and constituting the Bank	2 days	Group discussion : A panel of subjects experts + evaluation specialists.
5. Preparing Questions/items on cards and storing in Cardex trays	1 month	Controller's office
6. Selecting 20% random sample cyclostyling or printing and distributing to individual colleges	1 month	Controller's office
7. Field trial of questions/items	One academic year	by individual teachers
8. Incorporating the Statistics on these cards.		

It is important that those questions and items that are not satisfactory (in relation to acceptable values of Facility and Discrimination), should be deleted and equally if not more important is that new questions/items must be added periodically to keep the Bank dynamic, alive and continuous. The University of Madras will soon consolidate the plans submitted by individual Boards and arrange to conduct three 10 day workshops one each at Madras, Coimbatore and Trichy to create initial Banks of questions/items in the Pre-university/First degree level subjects during the vacation period. It is worthwhile that other universities in the South also follow suit and thus help to create banks in various subjects without duplication of efforts.

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Vocationalisation of Courses Emphasised

The tenth annual convocation of the University of North Bengal was addressed by Professor R. C. Mehrotra, Vice-Chancellor, University of Delhi. Mr. A. L. Dias, Governor of West Bengal, presided over the convocation and conferred the various degrees. Prof. Amlan Datta Vice-Chancellor, in his report drew the attention to the urgent need for the establishment of a Centre of Social Science and Historical Studies and a Centre of Life Science Studies. These centres would draw scholars from all over the country and then make possible a concerted, careful and continuing study of men and institutions and the natural environment of this frontier region. He was happy to announce that a beginning has been made in this direction and the State Government has sanctioned a token grant.

Prof. Mehrotra in his address referred to the ever changing need and growing aspirations of the society. He said that inspite of the vast expansion and meagre resources available for higher education which have not at all kept pace with increasing numbers and escalating prices, the quality and standards of education have improved considerably in all the spheres of university education. The progress however cannot be compared with what has been achieved during the same period in many developed countries. He referred in this context to the new 10+2+3 pattern of education which has made ample provision for the vocationalisation of courses and channelising a large fraction of young people into vocations rather than merely to use colleges as waiting houses but also lead to the regulation of numbers in our colleges and universities. Once this is achieved, it could be the beginning of a new era in higher education to meet the ends of the

society.

Regarding the problem of flexibility and adaptation of courses best suited to the needs and aspirations of the society, nobody can deny that in spite of some changes which have recently taken place, the course contents and methods of education continue to remain basically unchanged from the inherited pattern of colonial days. Prof. Mehrotra referred to the expectations made from the universities and colleges mainly to train graduates for vocations in life and said that such expectation should be looked at with caution. The primary role of the universities and colleges (leaving professional institutions) should continue to develop the mind and make it capable of imbibing new challenges as they continue to arise in the fast changing world of today. Mere mechanical training that is suited to a profession at a particular point of graduation would deny the very purpose of higher education. The present day conditions provide an opportunity for us to ponder over the deficiencies and shortcomings of our system. The advantage of peaceful atmosphere prevailing all round should be utilised to set our house in better order and we should take full advantage and explore in depth the reasons which have led to widespread discontentment and dis-satisfaction among the youth in recent years.

The university system in the country is passing through a period of acute stress and strain. In spite of regional differences some problems of the universities and institutions of higher learning are surprisingly similar.

In fact although a developing society like ours does expect that the university should play its due role in the development of not only new knowledge but also new tech-

nology which might enrich the society in order to enable them to bear the ever increasing burden of modern teaching and research, the society has in its turn, to plan and channelise its resources in a much more meaningful way so that the initial inputs for research efforts are provided and the universities are able to play their due role in development efforts.

Another problem which has been referred to above is that of democratisation. There is no doubt that we have been tied down to a hierarchical system in our universities rather too tightly and too strongly. Having accepted a democratic pattern of life, it is but natural that similar aspirations would be aroused and would be demanded in the educational institutions. Every one of us is enthusiastic in our efforts to bring about the ideal conditions. But the only point to be noted is that we do not get drifted in this process too fast and too far so that academic excellence gets diluted to a level of common mediocrity whereas the lowest levels are not raised to the same extent. It is much easier for a young institution to make novel innovations and adopt a new system at the very initial stages so as to serve the society in the best manner possible and the University of North Bengal is best suited to bring this about.

The chancellor in his address referred to the code of conduct evolved by the teachers of the university which inter-alia sets out the duties and responsibilities of teachers, emphasise the need to develop and improve academic and professional competence, enjoins participation in academic programmes, imposes an obligation on teachers to organise their teaching schedules in relation to the curriculum and expects teachers to involve themselves to a greater extent in extra-curricular and co-curricular activities. He appealed to the fraternity of teachers to observe the code scrupulously.

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S.N.D.T.'s Silver Jubilee Convocation

The silver jubilee convocation of S. N. D. T. University was delivered by Begum Zehra Ali Yavar Jung, a member of the national committee for the celebrations of the international women year. In her address she called upon women to assert themselves to gain their rightful place both at home and in the national sphere. As long as women remained ignorant they would be dependent and un-self-realising.

Mrs. Yung said that education really began at home and even an illiterate or poor home had its own lessons of struggle. The life is for acquiring knowledge and understanding to cultivate and enrich the mind, to provoke thought and curiosity and give a sense of values. That is education in its true meaning and result, beginning with learning how to read and write and leading to experiences and discoveries of others. The books and equipment are mere aids to thought and experimentation and knowledge must both inform and agitate the mind in its quest for more knowledge and the choice of areas of its application. Teaching and examination are similar aids: where they are not, they fail in their purpose. The 'results' of examinations are as much a test of the teacher as of the student.

Education had to relate itself in all its varieties to the varieties of life, one's own life and the life of the community. Students should ask themselves what they should do with education. This was no longer an age merely of rising expectations but even of rising anticipations as Daniel Bell had put it. Graduation was thus not the end but the beginning of education and teaching and examinations were as much a test of the teacher as of the student. Life posed far more numerous questions which are sometime

difficult to answer. Mrs. Yung said that it is deplorable that 90% of women's intellectual potential is lying idle, in the country and that only 18% of them are literate. No wonder that the sum total of our contribution to the country's Progress is so small when all of us could carry the destinies of the country in the palms of your hands. There have been, and still are, great women among us as you could see for yourself because they stand out like everests on the national scene, but society is assessed and determined by the law of averages and as long as our women remain largely ignorant they will also remain largely dependent and un-self-realising. We have to shake off this uninformed dismissal of ourselves. Our education of whatever kind must provide us with the tools and teach us how to use them.

Education can be both an end in itself, in the sense particularly of new knowledge and means to an end. However there is no journey's end for either. We have reached the Moon and are busy trying to reach Mars, Jupiter and Venus. Our discoveries and practices in medicine, engineering and the social sciences are revolutionising our lives, and our means of communication are bringing the world's people and ideas together in such close proximity that geographical frontiers no longer exist. But still we have no security, the national chauvinism still persists. The people or communities who have suffered from history and the adversities of backwardness or subordination offers a great promise of liberation than others. They have produced the greatest fighters for emancipation. The women of India would be able to usher in an era of greater promise but the future will be theirs only if they avail of it. So educate all the backward, give them the opportunities which they need and let them come forward in dignity and self-assertion. For this educa-

tion must be carried to the remotest corners of our land.

Shri Ali Yavar Jung, the Chancellor of the University, presided over the convocation and conferred the various degrees.

Republic Day Awards

Padma Vibhushan

1. Dr. K. L. Shrimali,
Vice-Chancellor,
Banaras Hindu University.
2. Col. Bashir Hussain Zaidi,
Former Vice-Chancellor,
Aligarh Muslim University.

Padma Bhushan

Dr. Malcolm S. Adiseshiah,
Vice-Chancellor,
University of Madras.

Padma Shri

1. Dr. A. B. Joshi,
Director,
Indian Agricultural Research
Institute,
New Delhi.
2. Shri R. L. Anand,
Director,
NS National Institute of Sports,
Patiala.
3. Dr. Amy Dhunijibhoy Engineer,
Professor and Head of the
Department of Obstetrics and
Gynaecology,
K.G. Medical College,
Lucknow.
4. Dr. (Km) Durga Meulkar,
Director,
Lady Irwin College,
New Delhi.
5. Dr. Ravindra Santuram Dharkar,
Professor of Neuro-surgery and
Head of the Department of
Surgery,
Gandhi Medical College,
Gwalior.
6. Prof. Syed Bashiruddin,
Professor of Library Science,
Aligarh Muslim University.
7. Dr. Krishna Pal Narayana Pai,
Honorary Professor of
Medicine, Medical College,
Trivandrum.

ROUND UP

Workshop on Grading

A two-day workshop on grading system was organised by the University Grants Commission in Madras under the chairmanship of Dr. Malcolm S. Adiseshiah. Professor Satish Chandra of the University Grants Commission inaugurated the conference. The representatives of the universities of Tamil Nadu, Andhra Pradesh, Kerala and Karnataka agreed unanimously to adopt the grading system of examinations at the postgraduate level from 1977 beginning with the admissions this year. They also recommended to switch over to grading system in respect of undergraduate examinations for admissions from the academic year 1977-78. It was decided that the intervening period should be utilised for necessary appropriate work including the consideration by the various university bodies and orientation of teachers and students to the new system. The earlier workshops held in Chandigarh, Delhi and Bombay had also decided on switching to the grading system following the suggestions of the University Grants Commission.

There was consensus for having a seven-point scale in grading, the distinctions ranging from 'outstanding' to 'very poor' as it would keep evaluation within reasonable limits of confidence and spacing would not become so wide as in the five-point scale. The workshop however felt that in five-point scale might be more appropriate to agricultural universities and technical institutions. The workshop felt that the system if adopted countrywide would introduce uniform means of valuation and comparability among different universities. It would be more relative and reliable means of evaluating learning achievements and help the students in

their choice of subjects in accordance with their aptitude and ability. Grading would also enable comparability of different disciplines in evaluation.

The workshop hoped that the University Grants Commission would provide financial assistance for the orientation programme and for evolving all the necessary machinery in the universities.

The participants of the workshop felt that the grades of internal and external assessments must be shown separately. So far as external evaluation was concerned the teachers could directly evolve the grades but in external examinations the procedure of giving marks and converting them into grades could be adopted as an interim measure until the time the teachers get used to the system of giving grades directly. It was agreed that along with the grade of a student in each subject, the average of the grades expressed in points could be indicated up to two decimal points. Such a grade point average would enable the employers and others to distinguish between students belonging to the same category.

The workshop suggested that the universities must set up a machinery to go into the grievances of the students in respect of both internal and external assessments.

New Lucknow Statutes

The first statutes of Lucknow University under the amended act provide for the appointment of a disciplinary committee consisting of the Vice-Chancellor and two persons nominated by the Executive Council. The committee will hold enquiry against a teacher or a librarian and recommend their suspension pending the completion of the enquiry. In case of difference of opinion

among the members of the disciplinary committee, the majority decision will be binding.

A departmental committee will also be appointed to help the Head of the Departments in the discharge of their academic work. The statutes also lay down a six-point code of conduct for teachers. Every teacher shall perform his academic duties with absolute integrity and devotion and will not show any partiality or bias in the assessment of student, will not incite one student against other or against his colleagues or the alma mater, will not discriminate against any pupil on grounds of caste, creed, sect, religion, sex, nationality or language, will not refuse to carry out the decisions of the appropriate bodies and functionaries of the university or the college and not divulge any confidential information relating to their affairs.

The seniority among Deans of faculties and heads of departments shall be determined by the length of total period of service they have put in this capacity. The Vice-Chancellor shall form from time to time one or more seniority committees consisting of himself as Chairman and two Deans to be nominated by the Chancellor. Every dispute about the seniority of the teacher shall be referred to the seniority committee. Any faculty member aggrieved with the decision of the seniority committee may prefer an appeal to the Executive Council. If the Executive Council disagrees with the recommendations of the committee it shall give reasons for disagreement. All the disputes regarding seniority of teachers (other than the principal) shall be decided by the Principals of the Associated Colleges. Any teacher aggrieved with the decision of the Principal may prefer an appeal to the Vice-Chancellor.

The Chancellor under the new Statutes has been empowered to remove the Vice-Chancellor if the latter willfully commits or refuses to carry out the provisions of the U.P. Universities Act or abuses the powers vested in him. The

Chancellor has also been empowered to suspend the Vice-Chancellor during the pendency or in contemplation of any enquiry.

The statutes provide for appointment of honorary emeritus professors and place restrictions on conferment of honorary degrees.

The management of an associated college can obtain the privilege of an autonomous college after getting necessary recommendations of the Executive Council and approval of the Chancellor. Similarly the privileges of working men's college can be obtained.

New dimensions for Farm Varsities

Prof. K.N. Kaul, Vice-Chancellor, Kanpur Agricultural university has asked the agricultural universities to make a tripartite approach to increase the country's agricultural production by at least 25%. He has suggested that farmers, banks and agricultural universities should cooperate in raising food production more closely. The farmers could do hard labour, banks could provide finances and the universities could extend the latest technical knowledge. The Vice-Chancellor assured that the agricultural universities could stand guarantee for the loan given to the cultivators and could also provide quality seeds and with agricultural inputs and implements. It would also ensure irrigation facilities by constructing small tube wells. The universities would ultimately gain by giving training to students and staff. The banks would also benefit by the universities advice on proper utilisation of funds and raising food production. The cultivators would be able to minimise the existing loss to crops and achieve higher yields. The universities being autonomous bodies could easily approach the district authorities to solve the problems of the farmers without much delay.

Prof. Kaul has already made a beginning in his university by asking the students and staff to go to villages to find out their problems and offer them practical

solutions. The various teams have collected information on the problems of farmers of 21 districts lying in the jurisdiction of the Kanpur University and 15 of adjoining districts of Faizabad. The teams findings have been referred to the laboratories of the Kanpur Agricultural University for solution.

Bombay provides for autonomous colleges

The newly constituted Senate of the Bombay University considered the statutes for granting autonomous status to affiliate colleges of academic standing and the university was empowered to grant autonomy to such institutions in matters of admission of students, courses of study, instructions training, examinations and test, pertaining to degree and/or diploma examinations subject to the conditions laid down by the Executive Council.

These colleges should have a minimum standing of ten years and should have been permanently affiliated with the university. The Executive Council for granting the autonomous status would constitute a committee consisting of the Director of Higher Education, a representative of the University Grants Commission and other competent persons for examining such a request. The following criteria would be generally applied while considering such requests.

1. The number of subjects taught by it at the principal level for the degree examinations in respect of which autonomy is sought.

2. Whether the college provides facilities for the pursuit of excellence and a climate of scholarship.

3. Whether the college enjoys a reputation of high academic standards; has a consistently good record of performance by its students at University examinations and in cultural fields.

4. Whether the college has a teaching staff of high academic qualifications and quality.

5. Whether admission of students and recruitment of teachers

are made on the basis of merit only.

6. Whether the college has adequate physical facilities by way of library, laboratory equipment, buildings and other pre-requisites.

7. Whether the administrative set up and pattern of governance of the college are such as to be conducive to its functioning as an autonomous college.

8. Whether teachers of the college enjoy freedom for higher studies and research and for making new experiments and trying new ideas.

9. Whether the financial resources at the disposal of the college are such as to enable it to meet its responsibilities as an autonomous college.

According to the new rules the autonomous status will be conferred on an affiliated college for not more than three years in the first instance. The Executive Council may extend the period further on an appreciation from the college for the extension of the period.

U. P. Vice-Chancellors Meet

The Vice-Chancellors of universities of Uttar Pradesh met in Lucknow to assess their problems. Dr. M. Chenna Reddy, Governor of the State presided. The two-day conference suggested many improvements in the working of the universities. In view of the increasing pressures on the universities and colleges it was suggested that the private candidates be allowed to take all the university examinations.

The system of payment of remuneration to teachers for examining answer books and invigilation work was discouraged. Remuneration should however be paid to teachers of universities for examining answer books of external universities and those of private candidates. A committee under the chairmanship of Dr. Devendra Sharma, Vice-Chancellor of Gorakhpur University was constituted to work out the details of the number of answer books in each subject that should be examined

without any payment to the teachers of the degree colleges. It was also suggested that university service commission on the lines of public service commission should be constituted to expedite the selection of teachers and to end the practice of the ad hoc appointments in the universities. This commission could also function as a tribunal to settle service disputes amongst the teachers, a task now being performed by the Chancellor.

The Vice-Chancellors suggested setting up of campus council consisting of the representatives of teachers, students and non-teaching staff on the pattern of pantnagar university. They also wanted the students to have a say in the preparation of curriculum of study. It was also suggested that the heads of the various teaching departments should meet the students frequently to obtain their views on different matters.

It was felt that the student unions were necessary but at the same time student with brilliant academic records should be elected as its office bearers. Subjectwise associations were suggested as per recommendations of Kothari Commission. This would discourage professional student leaders backed by political parties and would induct the participation of good students.

It was suggested that the academic calendar should be rigidly adhered to and all the examinations in the universities should end by the end of May so that the results are announced by June every year.

The help of the University Grants Commission should be availed for the organisation of book bank in the colleges.

The Government would soon examine the demand of management of private degree colleges for allowing them to increase the fee. The Chancellor however warned the managements that the Government would take action against public degree colleges if principals and teachers approved by the Vice-Chancellor were not duly appointed in the colleges. He also

asked the management of private degree colleges to form an association which could discuss the various problems with the Government authorities.

It was suggested that the Vice-Chancellors should hold quarterly meetings of managements of private degree colleges to discuss their problems.

UGC Reconstituted

The Ministry of Education, Government of India, has reconstituted the University Grants Commission. The names of the members are as follows. The Vice-Chairman of the Commission will be notified later

Chairman

Prof. Satish Chandra

Members

- (1) Shri K. N. Channa, Secretary, Ministry of Education & SW, Government of India, New Delhi.
- (2) Dr. Ajit Mazoomdar, Secretary, Ministry of Finance, Department of Expenditure, Government of India, New Delhi.
- (3) Prof. R. P. Bambah, Director, Centre for Advanced Study in Mathematics, Panjab University, Chandigarh.
- (4) Prof. S. S. Saluja, Director, Institute of Technology, Banaras Hindu University, Varanasi.
- (5) Prof. (Miss) A. H. Dastur, Professor of Political Science, Bombay University, Bombay.
- (6) Dr. J. R. Chitambar, Principal, Agricultural Institute, Naini, Allahabad.
- (7) Prof. Maqbool Ahmed, Head of the Department of West Asian Studies, Aligarh Muslim University, Aligarh.

(8) Prof. B. M. Udgarkar, Tata Institute of Fundamental Research, Bombay.

(9) Dr. Chandran D. S. Devanesen Vice-Chancellor, North-Eastern Hill University, Shillong.

(10) Dr. S. Gopal, Department of Historical Studies, Jawaharlal Nehru University, New Delhi.

Recent acquisitions of Darbhanga Vishwavidyalaya

Rajkumar Subheswara Singh of Darbhanga recently announced a donation of 7000 printed publications mainly on world religion and philosophy and 300 rare art albums to K.S. Darbhanga Sanskrit University. A number of other valuable manuscripts and items of historical interest together with libraries, furniture and fittings are expected to be handed over to the university shortly. The university has constituted a committee under the chairmanship of Dr. R. K. Sharma Vice-Chancellor of K.S. Darbhanga University and Kumar Subheswara Singh, Pt Dwarika Nath Jha, Pt. Madan Mohan Mishra and the Registrar as its members to look after the maintenance and development of this unit of the library. The university has only recently acquired about 40 bighas of additional plot of land along with structure to this university from Darbhanga Raj.

Rajkumar Subseswara Singh also donated 127 rare art albums of his ancestors' personal library to the Lalit Narayan Mithila University for the establishment of Maharajadhiraj Kameshwara Singh museum. The proposed museum will be housed in the Nargona palace where Maharajadhiraj used to live. Besides these rare albums the museum of the university will contain personal collections of the late Maharajadhiraj which are kept in the Nargona palace in the same way as they were left in 1962 at the time of his death. The university proposes to add some more new collections from outside to enrich it.

Mathematics in Modern Education

Prof. S. Nurul Hasan, Union Minister of Education while addressing the regional conference on development of an integrated curriculum in Mathematics for the developing countries of Asia held at Bharwari (Allahabad) stressed the need for greater mobility between the department of Mathematics and other departments like physics, chemistry and biology for advancement of mathematics. He said that mathematics should form a part of the curriculum from the school stage otherwise it would be difficult for a learner to follow the subject at a subsequent stage. Mathematics has a great role to play in developing a proper scientific outlook, scientific temper and scientific way of life in the developing countries. He welcomed the integrated teaching recommended by the conference for various branches of mathematics and also its integration with other branches of science. He said science and technology were becoming more integrated with life and to understand them better the study of mathematics was essential.

Eminent mathematicians from U. K., Denmark, Afghanistan, Bangla Desh, Iran, Iraq and Sri Lanka besides the mathematicians from various universities in the country, participated in the conference.

Seventh Annual Conference of Boards of Secondary Education

The seventh annual conference of Boards of Secondary Education was held at Bhubaneswar. The conference called for the adoption of the new pattern of education. A major change contemplated under the new pattern was that the education would be uniform for all children up to class X and would be made more relevant to their life situation and state of the social, cultural and economic development of the country. The emphasis on an attitudinal change which related education to productivity

should be reflected in the instructional material and the place of importance given to work experience and vocational courses.

The conference discussed problems arising out of implementation of the new pattern of education. For bringing out the desired social transformation, vocational education at the plus two stage should be provided to prepare the students better for life and a flexible approach had to be taught. As far as possible utilisation of existing resources should be maximised and at the same time efforts should be made to encourage self-employment and vocational competence. Specialisation might not be desirable at the plus stage. Bridge courses should also be provided to facilitate transition from one stage of education to another. The conference recommended that there should be no insistence upon instructors being degree or diploma holders. In fact teachers, craftsmen and technicians who might be employed elsewhere or who were running their own workshops and had good knowledge of their trade should be employed irrespective of their academic qualifications.

Calling on the Boards to consider replacing the present system of awarding marks by award of grades, the conference said a committee might be set up to look into this question in view of its importance. The conference would meet next in Trivandrum. Prof. B.B. Misra, Chairman of the Board of Secondary Education of Orissa was elected the Chairman and Dr. R.P. Singhal, Secretary, Central Board of Secondary Education, New Delhi, was elected as the Secretary of the Conference.

Borlaug Award for Dr. Joshi

Dr. A.B. Joshi, Indian Agricultural Research Institute, New Delhi has been awarded the Borlaug Award for 1975 in recognition of his research work and services in the field of agriculture. Dr. Joshi is the third winner of the award since it was instituted by Coromandel Fertilisers in

honour of Dr. Norman E. Borlaug, noble prize winner. The award carries with it a cash prize of Rs. 10,000/- and a gold medal.



The presentation was made on the occasion of the sixth Coromandal lecture delivered by Dr. W. David Hooper, President of the International Development Centre, Canada in waitair at the time of the Science Congress.

Dr. Joshi has contributed significantly to speciation and evolutionary origin of crop plants like okara, oats and grasses. His works on cotton has been recognised internationally as of high scientific calibre. Dr. Joshi is a fellow of the Indian National Science Academy and the Indian Academy of Sciences and has been on the agricultural education panel of the National Committee of Science and Technology and on the International Board of Plant Genetics Resources. He has helped to restructure agricultural research and education in Egypt and Indonesia. His Contribution to crop improvement in India is widely recognised

Bangalore Streamlines Evaluation Working

Bangalore University has initiated action against one hundred and fifty examiners for committing mistakes in several items of examinations entrusted to them. The action ranges from a fine to debaring them for three years for any examination work.

The Controller of Examinations of all the three universities in the State of Karnataka have accepted the principles of punishments for mistakes evolved by the Bangalore University. They have urged the vice-chancellors to accept them. As early as 1965 the Syndicate of the Bangalore University had provided for punishment but no action was taken except in a few cases until Dr. H. Narasimhiah, Vice-Chancellor of Bangalore University set up the Lapses Committee in 1975. The committee finalised the recommendations in September but decided to give retrospective effect to them from April/May 1975 examinations.

The nature of mistakes reported have terrible consequences on the students (particularly the merited among them). Cases have come to notice when examiners set questions which are not part of the syllabus. Equally grave is the loss of blank answer books. The university detected a few cases

when new answer books have been inserted in a bunch of legitimate scripts. All these mistakes were noticed during the physical verification of 10% of the answer books that is done after every examination. At present the student has no protection against wrong evaluation nor assessment. All he can hope for is retotalling of marks on payment of certain fee. The university authorities feel that the answer to such problems lies not in providing for revaluation of answer scripts on request but two other things—physical verification of all the answer papers and returning the answer scripts to the student after the declaration of the results. Physical verification provides for a double check and returning the answer scripts, which is a public document, ensures that the evaluator will not do an indifferent job.

Correspondence Courses to be Job-oriented

The Punjabi University is plan-

ning to institute some job-oriented courses relevant to the needs of the society which could be conducted through the University's Department of Correspondence Courses. The Department of Correspondence Courses has started supplying library books to students based in rural areas away from library-cum-study centres opened by the department at many places in the country. The university would be setting up soon one such centre in London for the benefit of the students enrolled with the department for the study of elementary Punjabi. Under the present contact programmes which are held twice in a year for a total period of twenty days, the students of correspondence courses are given the benefit of classroom instructions for a total of 132 periods which are equal to one third of the total periods prescribed in the postgraduate teaching departments in an academic year.

Additions to A.I.U. Library

January 1976

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- Ryin, Kevin, ed. *Teacher education*. Chicago, University of Chicago Press, 1975. xvi, 325p.
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CLASSIFIED ADVERTISEMENTS

SOUTH GUJARAT UNIVERSITY

Applications in the prescribed forms (in eight copies) are invited for the following teaching posts in the Post-Graduate Departments of the University:

1. Department of Public Administration:

One Reader and
One Lecturer

(Reader to be qualified in organizational Theory and Techniques of Administrative Improvements OR Administration of Public Enterprises including areas of Performance Budget and Financial Administration)

(2) Department of Economics:

One Reader and
One Lecturer

(Reader to be qualified in Regional Economics and/or Economics of Growth)

(3) Department of Sociology:

One Professor,
One Reader and
One Lecturer

(For the post of Professor and Reader, persons qualified in Social Anthropology, Tribal Sociology, Urban Sociology will be preferred)

(4) Department of Interdisciplinary in Social Sciences (qualified in Economics or Sociology)

One Professor
(Specialist in Research Methodology)

(5) Department of Rural Studies:

One Professor

(To be qualified in Rural Economics and or Rural Sociology)

(6) Department of Physics:

One Professor,
Two Readers and
Two Lecturers

(Applicants for the posts of Professor and two Readers should be qualified in Nuclear and/or Particle Physics (Theoretical) or Thin Film Physics (Optical and Electrical Properties) or should be M. Tech./M.Sc. (Tech.) in Electronics, Solid State devices)

(7) Department of Chemistry:

One Professor,
One Reader and
Two Lecturers

(Professor to be qualified in Physical Organic/Inorganic Chemistry with deep research interest in Dye Stuff Chemistry and Chemistry of Drugs and Reader to be qualified in Theoretical Chemistry)

(8) Department of Mathematics/Statistics:

- (a) One Professor,
One Reader and
One Lecturer in Mathematics
- (b) One Professor of Statistics.

(9) Department of Business and Industrial Management:

Two Professors,
Two Readers and
Five Teaching/Research Associates and Case Analysts in the scale of Lecturers.

(One Professor to be qualified in Economics with Orientation in Management Studies in Entrepreneurial development programme and Quantitative Analysis and the other Professor to be qualified in Marketing Management. One Reader to be qualified in Human Relations with Orientation in Management Studies and the other to be qualified in Financial Management)

In the Departments where there are more than one post between the cadres of Professors and Readers the special fields suggested will be interchangeable between Professors and Readers

Pay Scales:

The present pay-scales are:-

- (1) Professor:
Rs. 1100-50-1300-60-1600
- (2) Reader:
Rs. 700-50-1250
- (3) Lecturer:
Rs. 400-40-800-50-950.

These pay-scales are likely to be revised with retrospective effect as soon as the State Government decides to implement the Fifth Plan Pay Scales recommended by the University Grants Commission. In addition to pay, the teachers of the University Departments are entitled to draw dearness allowance, house rent allowance and other benefits like contributory Provident Fund and Gratuity as may be decided from time to time

General:

The candidates with the knowledge of Gujarati will be preferred, those without such knowledge, if appointed, will be required to acquire working knowledge of Gujarati within the period of probation which shall be of two years. Selected candidates will be expected to join immediately

Information about the qualifications prescribed for each post and forms prescribed for applications can be had from the undersigned on payment of Re 1/- in cash or by Postal Order and with self-addressed envelope of 23 cm. x 13 cm. size duly stamped with Rs. 0.50 ps. The last date for receipt of applications is 28-2-1976.

Surat: 23-1-1976

G.A. DESAI
Registrar

BERHAMPUR UNIVERSITY

BHANJA BIHAR,

BERHAMPUR-7 (GM)

No. 715/Admn/BU/76, Dated the
30th January, 1976

ADVERTISEMENT

Applications are invited for the following teaching posts for the Post-Graduate Departments of this University.

1. Chemistry:
Reader—One
2. Zoology
Reader—One
3. Botany:
Lecturer (Temporary)—One or Two.
4. Journalism:
Lecturer (Temporary)—One.

Scale of Pay:

- (i) Reader: Rs. 700-50-1250.
- (ii) Lecturer: Rs. 400-40-800-50-950.
plus usual allowances as admissible by the University from time to time

Qualification and experience:

For the post of Reader

- (i) M.Sc. having secured 48 % of marks in the subject.
- (ii) Must be a Ph.D Degree holder.
- (iii) (a) should have minimum of 5 years of teaching experience in the capacity of a Teacher in the P. G. Department or
- (b) 8 years of teaching experience in the capacity of a Lecturer out of which he should have taught for 2 years in Honours or P. G. classes.
- (iv) Capacity to guide research will be considered as an additional qualification

For the post of Lecturer in Botany

The candidate shall have a first or second class Master's degree (with at least 48 % marks) in the subject.

For the post of Lecturer in Journalism

The candidate shall have at least a Master's Degree in Journalism or a second class Master's degree with a minimum of 48 % of marks and five years of Journalistic experience in a responsible capacity in a Newspaper or News Agency of repute.

The above qualifications may be relaxed in case of persons who have held responsible positions in Newspapers or News agencies of National or International repute

NOTE: Experience in research shall be considered as an additional qualification for the post of Lecturer.

Seven copies of the prescribed application forms will be supplied to the candidates from the Office of the undersigned on payment of Rs. 10/- in person or by Bank draft, drawn on the State Bank of India, or by money order in favour of the Registrar, Berhampur University, Bhanja Bihar, Berhampur-7.

Dist. Ganjam, along with a self-addressed envelope measuring 22 x 10 cms. affixed with postage stamps worth of Rs. 0.85 paise.

The applications duly filled in along with attested true copies of Certificates, testimonials and publications etc. should reach the undersigned on or before 28-2-1976.

Applications received after the due date will not be entertained.

Candidates who are in service should apply through proper channel.

Persons in Government service selected for appointment shall be allowed leave salary and pension contribution for one year only, if they wish to retain the lien under Government.

The prescribed period of experience for the post will be calculated upto the last date fixed for the receipt of the applications.

Candidates will be required to appear before the Selection Committee at their own expenses. Selected candidates will be required to join the post within one month from the date of issue of the appointment order.

Sd -
R. C. RAJGURU
Registrar

**BERHAMPUR UNIVERSITY
BHANJA BIHAR- BERHAMPUR-7
No. 713 Admn:BU/76, dated the 30th
January 1976
ADVERTISEMENT**

Applications are invited for the following Teaching posts for the Post-Graduate Departments of this University

1. Physics:

Reader (Temporary)—Two

2. Botany:

Reader (Temporary)—One

Scale of Pay:

Rs. 700-50-1250

plus usual allowances as admissible by the University from time to time

Qualification and experience

(i) M.Sc. having secured 48% of marks in the subject.

(ii) Must be a Ph.D. Degree holder.

(iii) (a) should have minimum of 5 years of teaching experience in the capacity of a Teacher in the P. G. Department; or
(b) 8 years of teaching experience in the capacity of a Lecturer out of which he should have taught for 2 years in Honours or P. G. classes.

(iv) capacity to guide research will be considered as an additional qualification.

The prescribed period of experience for the post will be calculated upto the last date fixed for the receipt of the applications.

Seven copies of the prescribed application forms will be supplied to the candidates from the office of the undersigned on payment of Rs. 10/- in person or by Bank Draft; drawn on the State-Bank of India, or by money order in favour of

the Registrar, Berhampur University, Bhanja Bihar, Berhampur-7. Dist. Ganjam, along with a self-addressed envelope measuring 22 x 10 cms affixed with postage stamps worth of Rs. 0.85 paise.

The applications duly filled in along with attested true copies of Certificates, testimonials and publications, etc should reach the undersigned on or before 20-2-1976. Applications received after the due date will not be entertained.

Candidates who are in service should apply through proper channel.

Persons in Government service selected for appointment shall be allowed leave salary and pension contribution for one year only, if they wish to retain the lien under Government.

Candidates who had applied for the post of Reader in Physics in pursuance of the advertisement No. 3135 dated 8-4-75 and who answer the qualifications set out in the present advertisement need not apply again and their cases will be taken into consideration

NOTE: (1) Candidates for the post of Reader in Physics are required to appear before the Selection Committee on 29-2-1976 at 11 A.M. at their own expenses if they satisfy the present qualification and experience, and no separate notice will be sent to them.
(2) Candidates who have already applied in response to previous advertisement No. 8471 dated 8-12-1975 for the post of Reader in Botany need not apply again. Their cases will be considered if they satisfy the present requirement. The date for the interview will be intimated in due course.

Sd/-
R. C. RAJGURU
Registrar
Berhampur University

**MAHARASHTRA ASSOCIATION
FOR THE CULTIVATION OF
SCIENCE : POONA-4**

Applications are invited for the following post :

Reader in Chemistry (Bio/Organic Chemistry)

Pay Scale (Revised) : Rs. 1100-50-1600+allowances as admissible.
(Total starting emoluments Rs. 1558/-p.m. apprx.)

Qualifications: (1) Doctorate Degree in the subject from recognized University, (2) Research publications in recognized Journals other than Doctorate Thesis, (3) Experience in Post-Graduate Research Guidance and Teaching, (4) Experience in Laboratory Organization, (5) Ability to organize inter-disciplinary collaborative research projects.

Applications stating age, qualifications, experience etc. should be sent to

the Director, Maharashtra Association for the Cultivation of Science, Law College Road, Poona-4 before 15th March 1976.

Employed candidates should send their applications through proper channel.

**MADURAI UNIVERSITY
NOTIFICATION**

Applications in the prescribed form are invited for the following posts in the University Department of Physics and the Institute of Correspondence Course and Continuing Education.

For the Department of Physics

Some posts in Physics (such as professor, Reader and Lecturer) tenable for a period of three years under a University Leadership Project (ULP) in Physics.

For the Institute of Correspondence Course and Continuing Education

One Professor, one Senior Lecturer and one Lecturer each in Tamil English and History respectively.

One Professor, one Senior Lecturer and two Lecturers in Commerce.

One Professor and three Lecturers in Law

The applicants should possess high academic qualifications with experience of research work and teaching at Post-graduate level.

The last date for the receipt of applications is 20th February 1976. The prescribed form of application and full details regarding qualifications, field of specialisation and experience required can be got from the undersigned on requisition accompanied by (1) a self-addressed envelope with postage stamps to the value of Rs. 0.55 affixed thereon (2) a State Bank of India Chellan for Rs. 5.-or Demand Draft Rs. 5.-payable at Madurai drawn in favour of Registrar, Madurai University, Madurai 625021

Palkalainagar B. MURUGAN
Madurai 625021 REGISTRAR
Dt. 19th Jan. 1976

**GAUHATI UNIVERSITY
GAUHATI-781014.**

Advertisement No. 2 of 1976

Applications are invited for the following posts :—

(1) Professor of Business Administration :—One post.

(2) Reader in Business Administration :—Three posts.

(3) Lecturer in Business Administration :—Six posts.

Scale of pay :—

Professor Rs. 1100-50-1300-60-1600/-
Reader Rs. 700-50-1250/-

Lecturer Rs. 400-40-800-50-950/-

The scales of pay are subject to revision.

All posts carry usual allowances admissible under the University rules in force from time to time, and the incumbents will be eligible to pension cum G.P.F. cum Gratuity or Contributory Provident Fund as per relevant statutes of the University.

Essential Qualification :—

For Professor :—(1) Candidates must be recognised scholars in the subject with Doctor's degree or equivalent published work (2) Continuous research work of merit as evidenced by published papers in standard journals or published work of merit (3) 10 (ten) years' post-graduate teaching or 15 (fifteen) years' Honours teaching experience (4) Experience in guiding and promoting research.

In case of a candidate of exceptional abilities with outstanding research contributions, the requirement of teaching experience may be suitably relaxed.

For Reader :—Candidates must have (1) A Doctor's degree or published works of an equivalent high standard (2) Consistently good academic record with First or High Second Class (B+) Master's degree in the relevant subject or any equivalent degree of a foreign University. (3) Evidence of continuous research and (4) experience of 5 years' post-graduate teaching or 8 years' Honours teaching.

For Lecturer :— Candidates must possess (a) a Doctor's degree or published work of an equally high standard (b) Consistently good academic record with First or High Second Class (B+) Master's degree in the relevant subject or an equivalent degree of a foreign University.

In the case of a candidate whose research work as evident either from his thesis or from his published work is of a high standard, the qualification under (b) may be suitably relaxed.

If a candidate possessing a Doctor's degree or equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record (due weightage being given to M Phil or equivalent degree or research work of quality) may be considered for appointment on condition that he will have to obtain a Doctor's degree or give evidence of published work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Applications in plain paper in quadruplicate in the case of Professor and Readers and triplicate in the case of Lecturers giving full bio-data including (1) Name in full (in block letters) (2) Father's name (3) Date of birth by the Christian era. (4) (a) Permanent resi-

dence and address (in full) (4) (b) Present address (in full) (5) Present occupation if any and name of employer, (6) Present salary drawn (if any) (7) Detailed academic career with mark-sheets and subjects studies (including Honours) in degree and post-graduate courses from Matriculation/Higher Secondary/High School Leaving Certificate Examination onwards and copies/reprints of research contributions (8) Name and address of two referees not related to the candidate together with an application fee of Rs. 10/- (Rupees ten) (Rs. 7.50 in the case of scheduled caste/scheduled tribe candidates) by **CROSSED INDIAN POSTAL ORDER** drawn in favour of the Gauhati University payable at the Gauhati-781014. Post office should be sent in an inner sealed cover superscribed "Application for post of (Name of the post applied for) Advertisement No. 2 of 1976. enclosed in an outer cover addressed to Sri K.C. Bhattacharyya, M.A., Registrar, Gauhati University, Gauhati-781014 to reach him not later than 25th February, 1976.

The number of this advertisement and name of the post applied for must be referred to in the application. Persons in employment should apply through proper channel or with a no objection certificate from the present employer.

Candidate will be required to appear at an interview if and when called for.

Incompetent Teachers

(Contd. from page 4)

can be worked out on a countrywide basis. That this system will not be entirely satisfactory has to be conceded. At the same time, it would probably be better than the other procedures that have been advocated from time to time by those in authority. It would be desirable to introduce the system of periodic assessment from the very beginning of a teacher's career, but from the age of 40 it should be made mandatory.

To retire anyone at 40 or 45 would not be fair. If someone's performance is unsatisfactory, he should be warned; even a penalty might be in order, but not compulsory retirement. If a teacher continues to "underperform" till the age of 50 he could be retired. This step should, however, be linked with the provision of some benefits. Since a Government servant who is made to retire prematurely has something to fall back upon, something similar should be done for teachers. Otherwise enforced retirement would cause immense hardship.

Right to Appeal

The procedure for retiring a teacher prematurely should be established. A committee of three academics (with at least one expert from outside the State) should have all relevant data. (Unless it is unavoidable, the committee need not meet and can instead conduct

its business through correspondence.) If the majority is in favour of a teacher being retired, the person should be given an opportunity to defend himself. In other words, there should be nothing erratic or arbitrary about the decision. Moreover, the teacher should retain the right to appeal to the Vice-Chancellor or the Chancellor against the committee's decision.

There are other possible safeguards. It has to be recognized that in our situation, where the difference between having a job and not having one can mean real hardship, the question of compulsory retirement cannot be treated lightly. In any event, the essence of my proposals is not so much compulsory retirement as periodic assessment of a teacher's performance. We are quite often guilty of failing to recognize talent. But we are equally guilty of much more serious lapse, namely, of not criticizing or, when necessary, penalizing incompetence. If a choice has to be made between the two, it is incompetence and half-hearted performance which should not be allowed to pass unnoticed. To overlook incompetence is to encourage it and by implication, discourage those who are competent. Unfortunately, even to talk of such matters is considered bad form. A stage has, however, been reached where the problem has to be tackled openly and boldly.

Courtesy : The Statesman

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from Periodicals received in AIU Library during January 1976

EDUCATIONAL PHILOSOPHY

- Nassif, Ricardo. "Theory of 'de-schooling' between paradox and utopianism". *Prospects* 5(3); 75: 329-40.
- Warnock, Geoffrey. "Education and pluralism: What sort of problems?" *Oxford Review of Education* 1(2); 75: 93-7.

EDUCATIONAL PSYCHOLOGY

- Yamamoto, Kaoru. "Creativity and higher education". *Higher Education* 4(2); May 75: 213-25.

EDUCATIONAL SOCIOLOGY

- Galtung, John. "Educational growth and educational disparity". *Prospects* 5(3); 75: 323-28.
- Gottlieb, David and Bell, Mary Lou. "Work expectations and work realities: A study of graduating college seniors". *Youth and Society* 7(1); Sept 75: 69-83.
- Janic, Henri. "Educational needs of the 16-19 age group: A sociological perspective". *International Review of Education* 21(2); 75: 127-48.
- Linsky, Arnold S. and Straus, Murray A. "Student evaluations, research productivity and eminence of college faculty". *Journal of Higher Education* 46(1); Jan-Feb 75: 89-102.
- Rice, Joy K. and Redding, Juliette L. "Personal adjustment and social orientation among activist and non-activist student groups". *Youth and Society* 7(1); Sept 75: 84-96.
- Salter, B. G. "Student militants and counter culture". *Universities Quarterly* 28(4); Autumn 74: 455-69.
- Savane, Marie-Angelique. "Fertility and sex education in the third world". *Prospects* 5(3); 75: 372-9.

EDUCATIONAL PLANNING

- Kaul, J. N. "Latest legend: $10+2+2$ or 3". *Journal of Indian Education* 1(1); May 75: 25-32.
- Nurul Hasan, S. "New pattern of school education". *Journal of Indian Education* 1(1); May 75: 3-11.

EDUCATIONAL ADMINISTRATION

- ✓ Amrik Singh. "Restructuring our universities". *Economic and Political Weekly* 10(48); 29 Nov 75: 1847-51.
- Ashby, Eric. "Why EFs are so terribly 'misprivileged'". *Times Higher Education Supplement* (216); 12 Dec 75: 5.
- "Faculty collective bargaining: The end of professionalism—or the road to effective education". *Change* 7(2); May 75: 48-50.
- Fincher, Cameron. "On the rational solution of dominant issues in higher education". *Journal of Higher Education* 46(5); Sept-Oct 75: 491-505.
- Fraley, Lawrence E. and Vargas, Ernest A. "Academic tradition and instructional technology". *Journal of Higher Education* 46(1); Jan-Feb 75: 1-15.
- Jepsen, David A. and Dilley, Josiah S. "Vocational decision making models: A review and comparative analysis". *Review of Educational Research* 44(3); Summer 74: 331-49.
- Leslie, David W. "Legitimizing university governance: Theory and practice". *Higher Education* 4(2); May 75: 233-46.
- Lipsit, Seymour Martin. "Faculty unions and collegiality". *Change* 7(2); Mar 75: 39-41.
- Sethi A. R. "Model of institutional co-operation: JNU-ICSSR". *University News* 14(1); Jan 76: 24-5.

CURRICULUM

- Doyal, Len. "Interdisciplinary studies in higher education". *Universities Quarterly* 28(4); Autumn 74: 470-87.
- Knott, Bob. "What is competence-based curriculum in the liberal arts?" *Journal of Higher Education* 46(1); Jan-Feb 75: 25-40.

TEACHING

- Baron, Jonathan. "Some theories of college instruction". *Higher Education* 4(2); May 75: 149-72.

EDUCATIONAL RESEARCH

- Glueck, William F. and Jauch, Lawrence R. "Sources of research ideas among productive scholars: Implications for administrators". *Journal of Higher Education* 46(1); Jan-Feb 75: 103-14.
- Snow, Richard E. "Representative and quasi-representative designs for research on teaching". *Review of Educational Research* 44(3); Summer 74: 265-91.

EVALUATION

- Fincher, Cameron. "Is the 'SAT' worth its salt? An evaluation of the use of the scholastic aptitude test in the university system of Georgia over a thirteen year period". *Review of Educational Research* 44(3); Summer 74: 293-305.
- Hofmann, Richard J. "Concept of efficiency in item analysis". *Educational and Psychological Measurement* 35(1); Autumn 75: 621-40.
- Johnson, Henry C. and others. "Assessment of teaching in higher education". *Higher Education* 4(2); May 75: 173-94.
- Natarajan, V. "Examination reform—programme and its outcomes. Calicut University". *University News* 14(1); Jan. 76: 22-3, 25.

ECONOMICS OF EDUCATION

- Burkhead, Jossee and Miner, Jerry. "Economics of education in British perspective: A review article". *Journal of Human Resources* 9(3); Summer 74: 390-7.
- Pelton, Leory H. and others. "Economics of teaching". *Change* 7(2); Mar 75: 45-6, 67.
- Piachaud, David. "Economics of educational opportunity". *Higher Education* 4(2); May 75: 201-12.
- Psacharopoulos, George. "College quality as a screening device". *Journal of Human Resources* 9(4); Fall 74: 556-8.

ADULT EDUCATION

- De Sanctis, Filippo M. "Towards a 'social university'?" *Prospects* 5(3); 75: 405-14.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

- ✓ Amrik Singh. "Indian education since 1947: An assessment". *Prospects* 5(3); 75: 312-22.
- Bal Krishna, C. "Education sector and impact on masses". *Mainstream* 14(19); 10 Jan 76: 17-18.
- Christopherson, Derman G. "Current trends in the United Kingdom". *Higher Education* 4(2); May 75: 133-47.
- Ford, Boris. "Changing relations between universities and colleges of education in W. Germany, Sweden and Denmark". *Universities Quarterly* 28(4); Autumn 74: 404-36.
- Kuberski, Jerzy, and Wolczyk, Jerzy. "Bases of the reform of the educational system in Poland". *Prospects* 5(3); 75: 301-11.
- Perkin, Harold. "Adaptation to change by British universities". *Universities Quarterly* 28(4); Autumn 74: 389-403.
- Ubeid, Ahmed Hasan. "Thoughts on the renewal of Arab education". *Prospects* 5(3); 75: 399-405.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Cowsik, R. C. Problems in commutative algebra. Properties of Cohen-Macaulay and Gorenstein rings. University of Bombay.
2. Venkatramani, Lakshmi Bai. Problems connected with algebraic groups—vanishing theorems for Schub varieties in G/B. University of Bombay.

Statistics

1. Varde, V.S. Some problems of estimation in discrete distributions and in accelerated life testing. University of Bombay.

Physics

1. Barthwal, Sudhir Kumar. Thermoelectric power of some tetrahedrally coordinated amorphous semiconductors. I.I.T., Delhi.
2. Basu, Udayan Kr. A multi-regge model for particle production at high energy. University of Calcutta.
3. Bhattacharyya, Bidyutjyoti. Exploration of simple relationship between elementary particles. University of Calcutta.
4. Chattopadhyay, Anulosh. A Stark modulated microwave spectrometer and its application to some organic molecules in the gaseous state. University of Calcutta.
5. Kapahi, V. K. Angular structures of extragalactic radio sources and cosmology. University of Bombay.
6. Kulkarni, V. H. Studies in wave particle interactions. Gujarat University.
7. Rao, A. P. A study of interplanetary scintillation at 127 MHz. University of Bombay.
8. Roy, Amit. Study of proton induced resonance reactions on ^{23}Na , ^{27}Al , ^{51}V and ^{63}Cu nuclei. University of Bombay.
9. Sharma, Ram Pal. Scattering and guided propagation of laser beams in plasmas. I.I.T., Delhi.
10. Singh, Ashok Kumar. Hypertine interaction studies using perturbed angular correlation and Mossbauer effect techniques. I.I.T., Kanpur.
11. Subhash Chandra. Nonlinear interaction of electromagnetic fields with plasmas. I.I.T., Delhi.
12. Tewari, R. Molecular orbital calculations on biomolecules. Secondary structure of simple stranded nucleic acids. University of Bombay.
13. Tikku, Varinder Kr. Some nuclear spectroscopic studies with neutron induced reactions. University of Calcutta.
14. Vyas, N. K. Studies of low frequency instabilities in collisionless plasma. Gujarat University.

Chemistry

1. Bhattacharyya, Satuprasad. Studies on heterocyclic compounds. University of Calcutta.
2. Chakrabarti, Sambhunath. Studies on plant phenolics and terpenoids. University of Calcutta.
3. Das, Tushar Kanti. Synthetic studies on sesterpenes. University of Calcutta.
4. Gupta, Rajaram. Metal complexes of salicylal sulphonamides. University of Indore.
5. Kanabur, V.V. Heterocyclic boron compounds. Karnataka University.

6. Langalia, J. K. The study of minor constituents of marine and inland sources. University of Gauhati.

7. Masrani, Kanaiyalal Vanmalidas. Sorption studies of coumarins with ion-exchange resins. M.S. University of Baroda.

8. Misra, Dinabandhu. Solvent extraction of uranium with sulphoxides. Utkal University.

9. Pundlik, Mukund Digambar. Studies on rare earth complexes. Nagpur University.

10. Rajasekharan Pillai, V. N. Photocyclization of azobenzene and its derivatives. University of Kerala.

11. Ray, Jayati. Physico-chemical studies on coordination complexes: Kinetic studies on the formation and dissociation of some complexes of chromium (III) and Cobalt (III). University of Calcutta.

12. Sinnarkar, Nirmal Dattatraya. Thermal decomposition of irradiated formates. Nagpur University.

13. Vasireddi, Sivalinga Prasad. Studies on rare earth complexes. Nagpur University.

Earth Sciences

1. Hanagodimath, R.S. Granites, Gneiss and the associated rocks around Koratagere, Tumkur District, Karnataka State. Karnatak University.
2. Mishra, Ramesh Pd. The petrology, petrochemistry and metamorphism of the basic igneous rocks around Chikhli, District Betul (M.P.). Awadhesh Pratap Singh University.
3. Satyanarayana, Bulusu. Petrology of the granite rocks of Narasipatnam—Tuni area; Andhra Pradesh, India. Andhra University.
4. Suryaprakash Rao, A. Geochemical studies on some of the Deccan traps of India. Osmania University.
5. Vinnave, Sachchida Nand. On some aspects of radioactive mineralisation and heavy-mineral distribution in Motur-Bijori sediments of Satpura-Gondwanas based on paleo current analyses and lithological studies in the type area of Bhawra-Suk-Tawa Betul and Hochangabad Districts, Madhya Pradesh. Nagpur University.

Engineering & Technology

1. Alexander, M.M. Studies on pectins. University of Bombay.
2. Bansal, V. K. Collector frother interaction in a flotation system. I.I.T., Kanpur.
3. Khan, Mahfoozur Rahman. Quantitative correlation of bioelectric impedance with physiological parameters. I.I.T., Delhi.
4. Parvatalingeswara Rao, V. Studies on mass transfer at cylinders rotating about parallel axes. Andhra University.
5. Sridharan, K. Studies in mass transfer: New systems for the measurement of effective interfacial areas and transfer coefficients in gas-liquid contactors; mass transfer characteristics of agitated contactors. University of Bombay.
6. Vencobachar, C. Biochemical model for chlorine disinfection. I.I.T., Kanpur.

BIOLOGICAL SCIENCES

Biology

1. Nasar, Sayeed Aftab Khalid. Studies on some aspects of pond ecosystem at Bhagalpur. Bhagalpur University.

Biochemistry

1. De, Rabindranath. Studies on the biochemical aspects of pigment metabolism. University of Calcutta.

2. Jayanthi Bai, N. Carbohydrate metabolism in mycobacteria. University of Kerala.

3. Majumdar, Hemanta Kr. Studies on the regulation of cell division with special reference to chromatin. University of Calcutta.

4. Majumdar, Prabir Kr. Studies on L. ascorbic acid metabolism in animals. D.Sc. University of Calcutta.

5. Sinha, Sandipnarayan. Studies on some of the aspects of nucleic acid metabolism in muscle and transplanted fibrosarcoma. University of Calcutta.

6. Telang, Shailaja Dattatraya. Effects of prenatal, neonatal and postweaning nutritional deficiencies on brain enzymes in rats. M.S. University of Baroda.

Microbiology

1. Bhattacharyya, Sukhamay. Studies on the mechanism of immunity in cholera and evaluation of serological tests that determine the nature of immune response. University of Calcutta.

2. Mukhopadhyay, Mrinal Kanti. Studies in smallpox in special reference to the virus excretion by smallpox patients or their contacts. University of Calcutta

Botany

1. Agarkar, M.S. Ecological studies on the algae of Bhopal (M.P.). Awadhesh Pratap Singh University.

2. Aindrila Chandra. Physiological studies on some Indian species of edible mushrooms. University of Calcutta.

3. Bhatt, Ramesh Gajendraprasad. A contribution to the floristics and phytosociology of the Panchmahals District in Gujarat State. Sardar Patel University.

4. Chattopadhyay, Barunkumar. Studies on some aspects of the biology of hexagonia species associated with *Diospyro embryopteris* (Pers). University of Calcutta.

5. Chaudhuri, Jaladhibhushan. Chromosome studies in some monocotyle donous genera with special reference to the importance of ecological factors in their evolution. University of Calcutta.

6. Chokshi, Satishchandra Jagmohandas. Studies on growth and alkaloid content in *datura metel*, *L. cellus* and cell suspension cultures. M.S. University of Baroda.

7. Gujral, Mehtab Singh. Studies in the seedling anatomy of certain Indian members of leguminosae (Sensu Lato). University of Indore.

8. Nene, Kishore Mukund. Biology, cytology, cultural studies and systematics of some *ustilaginales* from India. Nagpur University.

9. Tara, C. P. A cytological and biochemical study of plant sterility with special reference to *impatiens* mutants. University of Kerala.

Zoology

1. Ganpat, Baile Vasant. Studies on B-glucuronidase of bat in seasonal breeding cycle. Shivaji University.

2. Guha, Tapan. Some biophysical studies of the effects of radiation on vertebrates (on mortality, spermatogenesis, R.B.C. and hemoglobin). University of Calcutta.

3. Mirajgaonkar, Praphullachandra Vithalrao. Biology of *Sireptocephalus dichotomus* (Baird) branchiopoda, anostraca. Marathwada University.

4. Mojamdar, M.V. Autoradiographic and histochemical studies on vertebrate cells: Histochemicals, biochemical and autoradiographic studies on pigment synthesizing and nonpigment synthesizing skins. University of Gauhati.

5. Pal, Asok Kumar. Some studies on the effect of pregnancy gonadotrophins (HCG and M&G) in the physiology of pseudopregnancy or pregnancy in rats. University of Calcutta.

6. Paliwal, Jagdish Chandra. Studies on the hypothalamo, hypophyseal and caudal neurosecretory system in a teleost, *Eutropichthys vacha* (Bleeker). University of Indore.

Medical Sciences

1. Chakrab, M. G. Pharmacognosical and phytochemical studies of some volatile oil containing drugs (Chemical races in Fensel & Dill). University of Gauhati.

2. Lalit, V. S. Space-occupying lesions of human central nervous system: (1) A study of pathological profiles in 2100 cases; and (2) An in vitro study of 21 neoplasmas in short term cultures. University of Bombay.

3. Mandana, Sunithi P. Psychological deficit in the post-traumatic syndrome and epilepsy. Bangalore University.

4. Mishra, Haripada. Therapeutic procedures of behaviour modification. Bangalore University.

5. Mukundan, C. R. Arousal and orienting reflex. A psycho-physiological study with schizophrenics and neurotics. Bangalore University.

6. Nimbkar, A.Y. Peripheral autonomic transmission in the isolated rat stomach fundus and its modification by 5-methoxy-indole compounds. University of Bombay.

7. Palayoor, S. T. Interacting influences of tumor and embryonic cell system. University of Bombay.

8. Sathe, M.S. Variants of A and B antigens and Oh (Bombay) phenotype with reference to quantitative evaluation. University of Bombay

9. Senarma, Sonilkumar. A physiological study of work and thermal stresses on Indian coal-mines. University of Calcutta.

Agriculture

1. Ajri, Dundappa Shankarappa. Studies on insect choline acetyltransferase (EC 2.3.1.6.). I.A.R.I., Delhi.

2. Amar Singh. An organizational communication study in agricultural university set-up. I.A.R.I., Delhi.

3. Appra Rao, Gummadi. Structural and functional analysis of inter-personal communication network in diffusion of an agricultural innovation in an innovative and a non-innovative village in East Godavari District of Andhra Pradesh. I.A.R.I., Delhi.

4. Agarwal, K. N. Some investigations on the construction of ternary block designs and their application to asymmetrical confounded factorial design $q \times 3^2$. I.A.R.I., Delhi

5. Arora, Inder Kumar. Studies on tissue culture propagation of papaya, *Carica papaya* (L.). I.A.R.I., Delhi.

6. Baidya Nath Singh. Effect of moisture regime, nitrogen fertilization and intra-row spacing on growth and yield of potato. I.A.R.I., Delhi.

7. Brar, Hari Singh. Chemical weed control and crop-weed competition in cotton, *Gossypium hirsutum* (L.). Punjab Agricultural University.

8. Chakravarty, Rupak. Some contributions to the theory of construction of designs. I.A.R.I., Delhi.

9. Chakravorty, Sudhir Chandra. Foliar application of urea on cotton with special reference to biuret content. I.A.R.I., Delhi.

10. Chaudhuri, Manoranjan. Agronomical and physiological studies on rice with special reference to its cultivation in West Bengal. University of Calcutta.

11. Dalip Singh. Comparative effects of nitrogenous fertilizers and varying levels of biuret in urea on the potato, *Solanum tuberosum* (L.). Punjab Agricultural University.

12. Denday, Jaipal Singh. Hormonal regulation of peroxidase activity in germinating seeds of *Phaseolus aureus*. I.A.R.I., Delhi.

13. Doore, Devidas Nathuji. A study of the effect of different environments on growth and development of Soybean *Glycine max.* (L.). I.A.R.I., Delhi.

14. Dhawan, Satish Kumar. Studies on interrelationship of root-knot nematode, *Metoidogyne incognita* and little leaf of brinjal. I.A.R.I., Delhi.

13. Bhargava, Omkar Chaman. Studies on the relative drought tolerance of maize varieties. I.A.R.I., Delhi.
15. Ikbal Singh. Allocation of irrigation water of Upper Ganga Canal in Western U.P. I.A.R.I., Delhi.
17. Kadam, Santram Sambhaji. Some aspects of inorganic nitrogen metabolism in *Azotobacter vinelandii*. I.A.R.I., Delhi.
18. Karan, Fateh. Genesis and classification of some arid and semiarid soils of Western Rajasthan. I.A.R.I., Delhi.
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28. Ramachandran Nair, T.V. Physiological studies on nitrogen metabolism in relation to grain protein accumulation in wheat, *Triticum aestivum*. I.A.R.I., Delhi.
29. Ramarao, Sudabattula Venkata. Studies on the biology, bionomics and chemical control of the sorghum midge, *Contarinia sorghicola* (Coquillett). I.A.R.I., Delhi.
30. Ramasami, S. Chemical processing of bones into bonemeal and its affect on plant growth. I.A.R.I., Delhi.
31. Samuel, Jose. Water jet pumps for low lift applications. I.A.R.I., Delhi.
32. Sharma, Anirudha. Biochemical, serological and cross-inoculation studies of rhizobia of wild and pasture legumes. I.A.R.I., Delhi.
33. Sharma, Brij Mohan. Farm labour employment and income implications of multiple cropping, fertilizer, credit use and farm mechanisation: A normative analysis for farm in Alipur Block (Delhi). I.A.R.I., Delhi.
34. Sharma, Dila Ram. Studies on hybridization of somatic cells of plant origin in vitro. I.A.R.I., Delhi.
35. Sharma, Surat Ram. Further studies on cowpea viruses. I.A.R.I., Delhi.
36. Shive Shanth Reddy, M. Genetics of seedling resistance in wheat to leaf rust races of India. I.A.R.I., Delhi.
37. Sidhu, Ajmer Singh. Fixation and release of zinc and its interaction with magnesium. Punjab Agricultural University.
38. Sreerama Reddi, Nandela. Studies on mitotic rhythm and induced mutagenesis in wheat. I.A.R.I., Delhi.
39. Subrahmanyam, Chirala Shanmukha. Translation and transcription during amino acid starvation in *Escherichia coli* K 12. I.A.R.I., Delhi.
40. Suresh Mohan Prasad. Further studies on phyllody of sesamum, *Sesamum orientale* (L.). I.A.R.I., Delhi.
41. Tirumala Rao, Kesaraju. Studies on *Meloidogyne incognita* (root knot nematode) and *Rotylenchulus reniformis* (reniform nematode) associated with grape vine, *Vitis vinifera* (L.). I.A.R.I., Delhi.

42. Uneso Singh. Experimental manipulation of chiasma formation and meiotic differentiation. I.A.R.I., Delhi.

43. Varade, Prabhakar Ananda. Efficiency of indigenously produced potassium schoenite as a source of fertilizer potassium. I.A.R.I., Delhi.

44. Verma, Shailendra Kumar. Studies on Indian pipunculidae (Diptera). I.A.R.I., Delhi.

Veterinary Science

1. Avtar Singh. Epizootiological study of haematozoa and toxoplasma gondii in bovines of the Punjab and relationship of piroplasms of buffaloes with those of cattle. Punjab Agricultural University.

2. Gill, Balvinder Singh. Studies on the prevalence and pathology of Granulomatous pneumonias in buffaloes with particular reference to pulmonary mycosis. Punjab Agricultural University.

3. Paranjape, Vinayak Laxman. A study on some aspects of canine distemper virus. Konkan Krishi Vidyapeeth.

SOCIAL SCIENCES

Sociology

1. Bhattacharyya, Manibrata. Rituals in tradition and modernity: A socio-ethnographic study of funeral rituals among the Hindus and semi Hindu tribes of Kansabati Valley, W.B. University of Calcutta.

2. Halbar, B. G. Social aspects of economic change among the Lamani of North Karnatak. Karnatak University.

3. Mahale, Prabha V. Education in a rural setting: The study of a Mysore village. Karnatak University.

Political Science

1. Dhungel, Dwarika Nath. Panchayats and development in Nepal. Nagpur University.

2. Kpildoe Prasad Singh. Educational and political change in rural communities. Magadh University.

Economics

1. Chakrabarti, Arup. Monetary management for controlled expansion: A study of the operations of Reserve Bank of India's policy of controlled expansion 1951-1971. University of Calcutta.

2. Deshpande, Dinkar Kesharao. Property taxation in Vidarbha. Nagpur University.

3. Jha, K. K. Agricultural finance in Nepal with special reference to the Eastern Terai. University of Bombay.

4. Kar, Biman. Economic development of Tripura from 1951-1966: A critical study. University of Gauhati.

5. Pillai, R. U. Structure of public salaries: A study of Central Government employees. University of Bombay.

6. Ray, Bina. Estimation of capital formation in India: Its long-term trends of growth (1900-1951). University of Calcutta.

7. Sangem, Kishan Rao. Growth productivity and technical change in Indian railways 1951-72. M. S. University of Baroda.

Public Administration

1. Duggirala Ravindra Prasad. Cooperative administration. A case study of a District-Cooperative Central Bank in Andhra Pradesh. Osmania University.

Education

1. Parji, Dahyabhai Ramlal. A study of leadership behaviour and its correlates in the secondary schools of Panchmahals District. M. S. University of Baroda.

2. Saini, Shiv Kumar. The socio-economic and political factors in the development of education in British India during 1921-1947. M.S. University of Baroda.

3. Saraf, R. S. Training and preparation of teachers of English as a second language in Maharashtra: A critical study. University of Bombay.

4. Shrivaji, Sonar Madhukar. An analytical study of the use of filmstrips in teaching science in upper primary grades. Shivaji University.

HUMANITIES

Philosophy

1. Chaudhuri, Piyush Kanti. An enquiry into the nature, validity and value of religious experience. Nagpur University.
2. Mahajan, Jogindrakaur Jagjeetsingh. The dichotomy of 'Is' and 'Ought'. Nagpur University.
3. Raghav Pratap Singh. Gandhiji ke natik vichar dharaon ka alochnatmak adhyayan. Awadhesh Pratap Singh University.

Linguistics

1. Vishwanath, K. T. Descriptive study of 'Malvani'—A dialect of Marathi. University of Bombay.

Literature

English

1. Sahay, Prem Nath. Jawahar Lal Nehru as a literary artist. Magadh University.

Sanskrit

1. Chakraborty, Hari Pada. Asceticism in ancient India (from the earliest times to the period of Sankaracharya). D. Litt. University of Burdwan.
2. Jadeja, C. U. A critical study of the Nayaya Sutra IV, 14-43. University of Gauhati.
3. Mishra, Babu. Sulochna Madhav Champoo. K. S. Darbhanga Sanskrit University.
4. Mishra, Mrgankabhushan Na. Prasannraghavasya shastrimadhyayanam. K. S. Darbhanga Sanskrit University.
5. Mohanta, Ananda Mohan. A study of the literary aspects of Sri Sankaracharya's writings. University of Gauhati.
6. Prapandvidya, Chirapat. Dharmaranya Purana. A critical study. M. S. University of Baroda.

Hindi

1. Anuragi, Raghunandanrai. Dr. Vrindavanlal Verma upke anyason ke itihastik patr. University of Indore.
2. Bhatta, Shashi. Premchand aur Sharatchand ke upanyason ke nari patron ka tulnatmak adhyayan. Bhopal University.
3. Dubey, Chandulal G. Hindi rangmanch ka itihast. Shivaji University.
4. Jagannath Prasad 'Jiwant'. Rukmini Mangal kavya ke prampra. Magadh University.
5. Koul, Vijay Mohan. Vishnu Pratap Ramayan ka alochanatmak adhyayan. University of Kashmir.
6. Malik, Maheshi. Pushpadatt ka Ramkavya aur Krishan Kavya: Ek vishleshtnatmak adhyayan. University of Indore.
7. Mishra, Rampurkar. Yashpal ke upanyason ka alochanatmak adhyayan. University of Calcutta.

8. Pathak, Dineshchandra. Keshav ke Ramchandrika ka dhwanivadi adhyayan. Sardar Patel University.

9. Tiwari, Sudhakar Prasad. Banghelkhand ke Rewa jile ke grameen shabdavali ka anusheelan. Awadhesh Pratap Singh University.

Urdu

1. Abdullah, Tahira. Agha Hashar Kashmiri drama nigari ke takneek aur tareekh ke pass-e-manzar mein shakhsyat aur takhliqat ka tehqueeqi aur tanqueedi mutala. University of Kashmir.
2. Alam, Md. Mansoor. Bihar mein tazkira nigari. Magadh University.

Bengali

1. Bhattacharyya, Nandalal. Vanglar kathak-o-kathakata. University of Calcutta.
2. Goswami, Tarapada. Tinjan Bangali natyakarer natyabodh Girish Chandra, Kschirod Prasad O Dwijendralal. University of Calcutta.
3. Patra, Gopal Chandra. Sri Nityananda Prabhu avadan. University of Calcutta.

Tamil

1. Kuttalam Pillay, K. The descriptive analysis of Villi Paaratani. University of Kerala.

Malayalam

1. Sreedharan, V. Social novel in Malayalam—A critical study. University of Kerala.

Geography

1. Sharma, B. M. P. Land utilisation in Satna District. Awadhesh Pratap Singh University.

History

1. Bandopadhyay, Aparna. Anglo-Burmese relations (1840-1885). University of Calcutta.
2. Biswas, Tarankumar. Horse in early Indian art. University of Calcutta.
3. Chattopadhyay, Hiralal. Studies in the foreign relations of early Indian States. D. Litt. University of Calcutta.
4. Gangal, V. V. Assemblies in the Vedic age. University of Bombay.
5. Goswami, Jaya. The region of Kapsa and Gandhara (C-A-D 262-455): A study in the cultural history. University of Calcutta.
6. Imdad Hussain. Problem of defence: North East Frontier, with special reference to local corps and irregulars, 1827-66. University of Gauhati.
7. Patra, Sarat Chandra. The formation of the province of Orissa. Utkal University.
8. Sampath, M. D. Chittor through the ages. Karantak University.
9. Susheel Kumar. A historical appraisal of the later Western Chalukyas in the seventeenth century with special reference to the development of nationalism in medieval South India. University of Indore.



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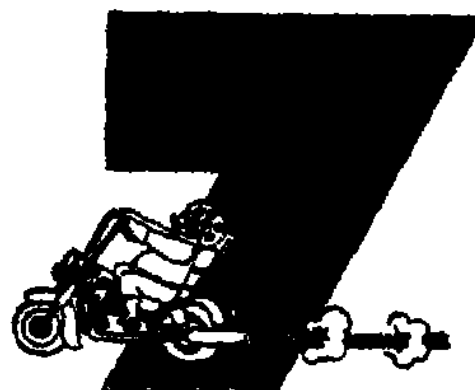


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iversity ews

Some Experiments in Higher Education Need for Continuing Education

RONICLE OF HIGHER EDUCATION & RESEARCH MARCH 1976 No.



Shri Fakhruddin Ali Ahmed, President of India, arriving in a procession to deliver the Convocation Address at Dibrugarh University.

SAMBALPUR UNIVERSITY
JYOTI VIHAR: BURLA
Advertisement No. 11374 TDS

Dated the 21.2.76

Applications in the prescribed form with attested copies of marksheet and certificates of all examinations passed are invited for two posts of Lecturer Electronic and Telecommunication Engineering in the University College of Engineering, Burla.

Essential Qualification

A first class Bachelor's degree or Master Degree in Electronics and Telecommunication Engineering a first class Bachelor's Degree in Electrical Engineering with a Master's Degree in Electronics or Telecommunication Engineering

Desirable Qualification

- (i) Some research experience and capacity to conduct independent research
- (ii) Teaching experience of one year in a University standard institution
- (iii) Corporate membership of recognised professional institution
- (iv) Doctorate degree

Scale of Pay: Rs. 400-40-500-50-950

The post carries C.P.I. benefits and dearness allowance as would be sanctioned by the University from time to time

Age of retirement: Sixty years

Seven copies of the application form will be supplied from the University Office to each candidate in person on cash payment of Rs. 10- (Rupees ten only). Candidates intending to receive form by post are required to send in a Crossed Indian Postal Order of Rs. 10- payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla. Sambalpur. (b) Self addressed envelope (23 x 10 cm) with postage stamps worth Rs. 2- affixed to it with the words "Application form for teaching posts in the Sambalpur University" superscribed. Money Order, Cheque or Bank Draft will not be entertained.

The last date of receipt of application by the undersigned is 27.3.76.

Candidates will be required to appear before a Selection Committee appointed by the University at their own expenses. Selected candidates will be required to join the post within one month from the date of issue of appointment order.

Issue of this advertisement does not make it binding on the part of the University to make appointment.

All communications should be addressed to the undersigned by designation and not by name. No interim reply to any query shall be given.

REGISTRAR

GARHWAL UNIVERSITY
SRINAGAR (GARHWAL)

Advertisement No. 76-2

Wanted for the University Constituent College at Srinagar:-

- (1) Professors one each in the subjects of English, Economics, Education, Botany and Chemistry in the grade of Rs. 1500-60-1800-100-2000-125-2-2500
- (2) Readers one each in the subjects of Ancient History Culture & Archaeology, Political Science, Hindi, Physics

Qualifications: (a) a doctorate in the subject of study concerned or a published work of a high standard in that subject and (b) consistently good academic record (that is to say the overall record of all assessments throughout the academic career of a candidate), with first class or high second class (that is to say, with an aggregate of more than 54 percent marks) in master's degree in the subject concerned or equivalent degree of foreign University in such subject. (Good academic record would mean an assessment from High School Higher Secondary Examination to Master's Examination of not less than an average of 50% marks provided that the candidate has atleast a Second division in the Bachelor's Degree Examination)

Where the Selection Committee is of opinion that the research work of a candidate, as evidenced either by his thesis or by his published work, is of a very high standard, it may relax any of the qualifications specified in sub-clause (a) or (b).

Experience: Candidates for the post of Professor should have atleast 10 years experience of teaching Post-Graduate classes and guiding research. Candidates for the post of Readers should have at least 5 years experience of teaching Post-Graduate classes and guiding research.

The prescribed application form and detailed particulars can be had free of cost from the Registrar's Office either personally or by sending a self addressed envelope (5 x 11") with postage stamps worth Rs. 2-40. Applications accompanied by attested copies of degrees and other certificates and published research articles etc. should reach the undersigned by 31st March, 1976.

S.P. Varma
 REGISTRAR

SAMBALPUR UNIVERSITY
JYOTI VIHAR : BURLA

Advertisement No. 11189 TDS

Dated the 19.2.76

Applications in the prescribed forms are invited for the following posts in the Post-Graduate Departments of Sambalpur University as stated below:

1. Professor - one in Economics
2. Reader - one each in Oriya, Economics, Political Science, History, Mathematics, Physics, Chemistry and Biological Sciences
3. Lecturer - Two in English and one each in Political Science, Physics, Chemistry and Oriya.

Scale of Pay

Professor - Rs. 1100-50-1300-60-1600
 Reader - Rs. 700-50-1250
 Lecturer - Rs. 400-40-900-50-950
 (The pay scales are likely to be revised)

Age of retirement: Sixty years.

1. Qualification for Professor of Economics

- (i) At least a 1st or Higher Second class Master's Degree in the subject with specialisation in Econometrics or Mathematical Economics
- (ii) A Doctorate Degree or Published work of equivalent standard.
- (iii) Experience of conducting and guiding Research work for a considerable period

(iv) Independent published work of High Standard in addition to requirements in (ii) above

(v) Teaching experience for at least ten years in a college or University with at least 7 years experience in teaching P.G. Hons. Classes.

2. Qualification for the Post of Reader in Oriya Economics Political Science History Mathematics Physics Chemistry Biological Sciences

(i) At least a 1st or Higher Second Class Master's Degree in the respective subject. And for Reader in Biological Sciences atleast a 1st or higher Second class Master Degree in Botany or Zoology or Biological Sciences

(ii) Doctorate Degree or Published work of equivalent standard.

(iii) Independent published research work in the journals of international repute

(iv) Teaching experience for atleast 8 years out of which 5 years must be in P.G. Hons. Teaching in a college or University

(v) Capacity to guide Research Work

(vi) Specialisation as mentioned below in the following subjects:

Subject	Specialisation
Economics	Public Finance
Political Science	Political Economy
Physics	Electronics
Chemistry	Industrial Chemistry
Biological Sciences	Microbiology

3. Qualification for the Post of Lecturer in English Political Science Physics Chemistry Oriya

(i) At least a 1st or Higher Second Class Master's Degree in the subject

(ii) Teaching Research experience for atleast two years

(iii) Candidates with Ph.D. degrees will be preferred

A Professor may also be appointed on contract basis for a specified period. Retired persons may also apply for the same.

The posts carry usual dearness allowance as would be sanctioned by the University from time to time

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 10- (Rupees ten) only. Candidates intending to receive forms by post are required to send in a Crossed Postal Order of Rs. 10- payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla. (b) a Self Addressed envelope (23 cm x 10 cm) with postage stamps worth Rs. 2- affixed to it with the words "Application form for teaching posts in Sambalpur University" superscribed on it. Money Order-Cheque will not be entertained.

The last date of receipt of applications in the Office of the University at Jyoti Vihar, Burla, Sambalpur (Orissa) is 27.3.76. The candidates will be required to appear for an interview before a Selection Committee at their own expenses.

All communications should be addressed to the Registrar by designation only.

REGISTRAR

UNIVERSITY NEWS

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*A Monthly Chronicle of
Higher Education*

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Opinions expressed in the articles and reviews are individual and do not necessarily reflect the policies of the Association.

Editor : ANJNI KUMAR

Universities Vs R&D Organisations

*Excerpts from Professor Kidwai's convocation
address of Delhi University*

Our scientists and technologists have amply given proof of their ability in serving many developed as well as developing countries of the world. In our own country, they have played their part well in extending research work in various disciplines and also in the application of the results of their research for the promotion of agriculture, industry and other activities. Our universities are not only training young minds, they are also the centres of higher learning engaged in fundamental and creative research, and are extending the frontiers of knowledge. In this context, I cannot but express a feeling of anxiety that the role of universities in stimulating the young minds for research work and in organising fundamental research in different disciplines of science and technology, does not appear to have been adequately recognised by the authorities who shape and control the policy relating to science and technology. During the last 25 years, there has been considerable emphasis on an expansion of research and development organisations in this country but these organisations have been mostly isolated from the universities and not in a position to maintain a lively contact with the university faculties and the students. If one looks at the statistics of expenditure incurred out of the public exchequer, one finds that in 1973-74 the total national expenditure on research and development activities was of the order of about Rs. 204 crores, out of which the amount spent on providing research facilities at the Universities was only about Rs. 59 crores. While it is true that some of the research and development organisations have been given special tasks by the Government and have to carry on work of a very specialised nature, one would, perhaps, be justified in asking whether such research and development centres, working in isolation and delinked from universities, can fulfil the tasks assigned to them. Inadequate emphasis on research in the universities can not only affect the quality of teaching, but also cause a weakening of the research effort in the research and development centres themselves.

It seems desirable that the authorities review the research and development policy and provide encouragement to those research and development centres which are task-oriented. An essential ingredient of the success of such centres is that they should be task-oriented or they should be part of the user organisations which can utilise them fully. The effectiveness of a research and development centre working in isolation could very much be in doubt. On the other hand, the importance of universities as the cradles for fostering scientific talents and encouraging young minds to be interested in research work of fundamental importance can hardly be overemphasised. It is wrong to imagine that we can build strong industrial R&D structures without a sound educational base because whatever may be the sectors of scientific activity, it is the university graduates who are ultimately going to man them. This indicates the pivotal role which university education must play in promoting the development of scientific and technical research in the country. The universities which are engaged in teaching and fundamental research are ideally suited for carrying on applied research. In the isolated atmosphere in which many R&D organisations seek to work, endeavours in applied research cannot be fruitful. It is the universities alone which provide proper scope for inter-disciplinary support in carrying out research work—both fundamental and applied.

Need For Continuing Education

L. R. Shah

A University, in the best sense, is a privileged place where a community of scholars seeks to preserve advance and disseminate knowledge. It is established and sustained by society, for the express purpose of being that society's critic and its servant par excellence. This right the institution maintains and earns by accepting the responsibility that goes with its role. The genuine University today, as in the past, stands apart as a bastion of objectivity, intellectual dedication and pursuit. Hence it needs privacy—its ivory towers—to provide the teaching and research staff and students with an appropriate environment for uninterrupted and serious study. The modern university at the same time needs to build efficient communication with the community if it is to achieve its goal of disseminating knowledge beyond the classroom and the campus.

The idea of a university has undergone many changes over the last century. In a static society the university's role is fairly fixed. In societies where mobility is discouraged or limited, the university caters to the needs of a privileged minority whose status is determined either by wealth or privilege. But when the distinctions between the masses and the classes are broken, when these fences are lowered or nearly obliterated, then egalitarianism becomes not only a slogan but an achievable goal. Legislative provisions and other measures are reassuring that in India the pursuit of excellence no longer remains the privilege of a leisured minority. Although the core of the university should always be a select band of the enlightened, I submit that the institution should at the same time widen its circle of influence to embrace many aspects of community life. Our former President, Dr. S. Radhakrishnan once said: "If we aim at excellence in the individual we have to aim at it also in society. The university should project itself into the community. All barriers between the acquisition of scientific and technical knowledge and its utilization for the social good must go. Individual development and social responsibility should be the guiding stars of university work." The university—the home of the scholar, the inventor and the discoverer—also becomes the home of the disseminator. There is a need to open the portals of the university to a wider clientele. Dissemination of knowledge becomes the third major task of the university and teaching and extension services and administrative procedures have to be sought to bring the university into closer touch with the community.

The university's responsibility for education may be summarised under four areas—academic education, occupational education, education for social respon-

sibility, and liberal education. Academic education, usually leading to a degree or diploma—should be increasingly expanded by the universities in meeting public requests, especially from those working men and women who would like to pursue a formal education. Other means to be explored are evening classes and correspondence study. These may be applied in extending occupational education as well, particularly to professional groups. The responsibility of the university is to assist persons in improving their qualifications, including new competencies, and to help occupational groups, particularly the teaching professions, keeping abreast of advancing knowledge. The staff and students of the university should realize their personal obligation to the community and should assist the community itself in meeting social commitments. Finally, the universities must offer liberal education to members of the community to enable them to enrich their lives.

As it happens, learning takes place all the time, like breathing, without our being aware of it. It is not only educational institutions that educate, and it is not only teachers who teach. Education is like gravitation (or at any rate, like the traditional view of it). Everyone is teaching and learning from everyone else. The only choice is whether one learns or teaches what is worthwhile or what is not. Hence programmes of continuing education, in which the more enterprising universities engage themselves these days, are a sort of preventive action, so as to protect their clientele from the wrong sort of learning. If the universities won't teach them, the world will, and the world usually does a less than expert job in the matter.

An eminent President of a U.S. University, Roben J. Maaske aptly defined continuing education as "a group-learning effort, voluntarily undertaken by persons past adolescence, outside formal school institutions, deliberate in purpose, based on the interests and needs of the learner, for the purpose of enrichment and enlightenment."

A question often put to me is, what is the task of continuing education? We try to put this way:—

1. To serve those with little education.
2. To assist every man and woman to discover and develop the interests and possibilities that reach functional maturity only in middle age.
3. To help people adjust to the changes of modern life and to update and upgrade their professional knowledge and skills.
4. To promote better methods of thinking and study.
5. To help people find keener enjoyment in art, music, philosophy, literature and nature.
6. To help them achieve a philosophy of life. □

The author is Director, Department of Continuing Education, NEHU.

Some Experiments in Higher Education

A. B. Shinde

We have launched some experiments both in formal and non-formal education in our college. We do not want to sound original and revolutionary. What we practise we present here: there is no gulf between precept and practice. We are not concerned with the recommendations of the report of many commissions and committees. Nor do we feel exercised over the examination reforms as proposed therein. We have devised a plan of preparing students for university examinations in the circumstances obtaining in our educational field, specially in mofussil universities. Our experiments do not involve any change in the pattern of education and in the pecuniary obligations.

FORMAL EDUCATION

Attendance: It can be seen that a sizable number of students do not attend classes regularly. Some of them join colleges and turn up at the end of the academic year to fill in their university examination forms. Their continued absence is connived at: colleges are happy with their fees. Such defaulters are never detained. Hardly any efforts are made to persuade them to be present regularly in colleges.

To begin with, we notified to our students that we are very serious about regular attendance in the college: absence for one lecture would be treated as absence for the day. The seasoned defaulters took the notice in their stride. Another notice with their names and roll numbers was circulated first in all classes and was later on displayed on the notice board. The principal himself visited all the classes explaining the importance of regular attendance. This had some effect: a large number of the absentees approached him and promised to be regular. Names of those absentees who did not start attending their classes regularly were communicated to their guardians. Tidings of this action could not be kept as a guarded secret: hence, some of them colluded with postmen and the letters were never delivered to their guardians. Some of those guardians whom the letters reached by sheer accident called on the principal and assured him that their wards would behave! There were a few very hard cases. We could not contact them and *vice-versa*. As a result they were removed from the college with the approval of the

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staff. This was given wide publicity in the college. Eventually, attendance has noticeably improved.

Class Room Teaching

(a) **Medium of Instruction:** Long before the recognition of states on the linguistic basis, regional universities allowed an option to students to write their answers in regional languages. This compelled teachers to teach in the same languages. A vicious circle has been created. Because students do not know English, they are taught in regional languages. It is a moot point whether they should be taught in English or in regional languages. But in our opinion, this change-over to the regional language as the medium of instruction has led to a deterioration in standard of education. The importance of English is not on the wane; on the other hand, the number of schools and institutes imparting instruction in English is growing. English still has commercial value and as such must not be ignored at any cost. For quality education and job prospects it must be retained and students should be encouraged to learn through it.

With this view in mind we introduced both the media, English and Marathi, in our college. The teachers teach the same topic in English and Marathi. We insist that students should maintain a separate note book for English words: every day they should learn by heart at least 20 new words, idioms, phrases, etc. This is checked daily by the teachers in their classes. Students are further persuaded to read books, etc. in English, to write and speak in English. This is welcomed by the students who have taken now to English with enthusiasm unknown before.

(b) **Democracy in Class:** Ordinarily teachers go to classes and lecture for forty-five minutes without a pause. They generally do not bother to know whether students have followed them or not. There is hardly any scope for discussions and students too are by and large very much apathetic. The traffic is essentially one way.

In view of this our teachers are required not to teach continuously for forty-five minutes: if the students do not ask for a clarification of any point they do ascertain whether the point under discussions is understood by them. In short, they raise discussions in the classes or rather resort to catechism. The idea of partnership is introduced here wherein student becomes a junior associate in the process of learning. Monologues are drastically cut and replaced by discussions in which the minds of students and teachers react. It is by discussion that students could expand their knowledge and develop their critical faculty. Teaching through discussion is called democracy in class. Prospects of discussion keep the teachers on their toes and they have to prepare well before they engage their classes. Similarly students are also impelled to read in order to facilitate their participation in the discussions. Naturally, discussions become lively and instructive.

(c) **Questions** : When the topic is taught i. e. discussed this way, the teachers dictate in the first instance all questions on it collected from a variety of sources. An exhaustive inventory of questions on the subject itself to be covered in the class is drawn up by the teachers and the students in advance so as to ensure that the questions are not left out and are of the right standard. This acquaints the students with the nature and type of questions set on the syllabuses in examinations. In this way, questions in examinations would not come to students from 'out of the blue' : they would be ready even psychologically to attempt them. Further, this would do away with an 'element of surprise and shock' in examinations.

(d) **Jottings** : But this exercise in itself is not adequate. From a cursory look at the reports of the examiners on the performance of candidates at examinations it becomes obvious that performance is generally 'average, below average, not satisfactory and rarely is it excellent'. It means students do not know how to 'perform' at examinations.

Thus, dictation of questions should be supplemented by jottings explaining thereby the right meaning of questions and the way in which they should be answered. The students are, therefore, given jottings on each question regarding how they should begin, develop and conclude an answer. Building up answers always requires students to support statements and marshal evidence and organise facts. The teachers themselves build up model answers on the basis of the jottings given by themselves. This serves as a guide to the students in their attempt to write out answers. Then the students prepare a comprehensive answer covering all the questions on one topic. Such comprehensive answers prepared by them are carefully assessed by the teachers. Consequently, their notes for their final examinations would be short, relevant and well thought out. In the examination hall they would be almost 'loaded' with ready answers to 'shoot' all questions.

(e) **Tests** : Nothing should be left to chance and no stone should be left unturned in preparing students for examinations. Tests, weekly or fortnightly, as the time-table permits should be held to check on the preceding efforts. Students should be subjected to rigorous training in examinations. The tests provide once more an opportunity for both teachers and taught to review and revise the system of dictating questions and jottings on them, and writing out full-proof answers.

Weekly and fortnightly tests are held in our college: a question or questions are set a day before the test is held. This willy-nilly constrains the students to study at least for the test. This develops their judgments, memory and powers of communication very well coupled with their knowledge to support statements, marshal evidence and organise facts—all necessary for success in examinations. The terror and uncertainties of what Robert Hutchins once called 'the sudden death' examination will have been eliminated. This will also avoid disputes over the dates of scheduling examinations. Besides,

this will also affect tuition classes and guides—a traffic in education! Students generally resort to them because they are not prepared for examinations in their colleges.

(f) **Terminal/Preliminary Exams**: These days college examinations are not taken seriously at all; they are not treated as an exercise in preparation for final examinations. They have been reduced to a formality. Teachers and taught are equally cold towards them. Under the circumstances, we had a hard time in persuading the students to appear for the terminal examination. Those who did not take the examination sought the permission of the principal with the assurance to take it after the college was reopened. Despite all these efforts, those who appeared but failed to secure 20% of the marks were also asked to take the examination again. They were explained the reasons for their unsatisfactory performance.

NON-FORMAL EDUCATION

Socratic Club : College life is always agog with many extracurricular activities which have become inseparable routine formalities. Some of them have outlived their usefulness and others should be overhauled and rationalised altogether. There is, however, no escape from them.

We have introduced a totally new activity. We have started Socratic club for all the students and the teachers. The club is named after a great philosopher because he used to provoke people into discussions thereby dispelling their ignorance and widening their intellectual horizons. A meeting of the club is held on every Friday and most of the students and teachers attend it. There is an academic freedom to discuss everything under the sun and above the earth. Discussions are always lively and instructive. The teachers and taught participate in them vehemently. These weekly discussions widen the frontiers of their general knowledge, and develop their common sense and social personality. Secondly, they promote a cordial understanding between the teachers and the taught. Lastly, they serve as a safety valve because the students can freely ventilate their grudges and grievances thereby avoiding agitations and violence on the college campus.

OBSERVATIONS

It may be concluded that these experiments will prepare students for examinations and will curtail drastically the rate of failure which ranges at the degree level from 50 to 70 percent in arts and commerce. Graduates thus produced will not be a disappointment. This will inevitably contribute to the amelioration of standards also among the teachers who will come to be respected far more better than presently. The present vicious circle will be broken here.

These experiments will also foster the social consciousness among students and better their social personality. These methods, however, can better be applied to those areas where information content is of prime importance. □

Education for Librarianship and Information Science: A Plea for Relevance

H.C. Mehta

Is there any need for examining the courses and programmes of Librarianship and Information Science/Documentation?

It is visualized that with the introduction of 10+2+3 system in our school education and higher education, education in Science and Technology is going to have an input with a wider and better base of science education. It is also now realised that the need of the country both in industry and the scientific institutions and laboratories is not for specialization in one discipline of science or technology but an integrated knowledge of science and technology with a broad base interdisciplinary education in science, technology and society. Some of the universities and institutions of higher education have already restructured their courses and programmes, redesigned their teaching, evaluation and grading and have introduced quite a number of innovations in the form of work experience, practice school etc. to bring relevance in the whole educational process of our future scientists, technologists and the social scientists. When this base from where the postgraduate courses in Librarianship/Information Science is receiving its input, is drastically changing itself and moving fast towards relevance, under such a situation is it healthy to sit with a feeling of complacency that the courses of Librarianship/Information Science need no change? These courses were introduced in early fifties and not a word in their syllabi is changed till to-day, except earlier postgraduate diploma's are renamed Bachelor of Library Science! Librarians are facing a dangerous situation, because this complacency is going to 'exclude them from the company of intellectuals and from the academic seats of power'. It has already converted him (Librarian) as a clerk and he is going, as Leonard Freiser has implied, to make himself 'the biggest garbage collector in history'.¹

What is wrong with courses in Librarianship/Information Science?

A very pointed criticism about Education in Librarianship/Information Science is that our courses

and training are simply technique oriented with the result that :

'little by little preoccupation with method, technique and procedure gains a subtle dominance over the whole process of goal seeking. How it is done becomes more important than whether it is done. Means triumph over ends. Form triumph over spirit. Method is enthroned. Men become prisoners of their procedures, and organizations that were designed to achieve some goal become obstacles in the path of that goal'.²

Our training is not mission oriented. As Robert Taylor writes,

'Essentially the malaise of Librarianship is the result of an over concern with 'how' rather than 'why'...The Pragmatic vocationalism - the 'how' of Melvil Dewey has been the warp and woof of the profession since the late nineteenth century and with some mitigation but more rhetoric, this became enshrined as graduate programme in 1940's'.³

Taylor's criticism is levelled against Education of librarians in U.S.A, but when we examine our own courses of B.Lib.Sc. and M Lib Sc. we find that our syllabi are full of technique courses and even the courses like 'Reference Service' 'Book Selection' and 'bibliography' which could have been mission oriented have remained as mere techniques and methods. The existing system of Education for Librarianship/Information Science lacks the basic understanding of (i) the role of Librarians/Information Science vis a vis society and (ii) goals of Librarianship. Without these basic ingredients in the training, Librarians in India have either created an ego of professional expertise without real professional competence or a substandard hierarchy of professional cadre. The world of intellectuals and academicians know both these weaknesses very well and they cut the profession to the size and they decide 'what the profession should be, what it should do, and what image it should have'.⁴

To mend the damage done so far a new thinking is needed and a vigorous process to redesign the age old syllabi has to start.

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President's Address at Dibrugarh Varsity

The convocation address of the Dibrugarh University was delivered by the President of India, Shri Fakhruddin Ali Ahmed, this year. In his address the President emphasised the primary task of the universities to equip young men and women with the necessary skills to meet the challenges of life. The foremost of these challenges is the amazing pace of change which the technological revolution of the present age has generated. Knowledge has grown with such a tremendous speed that adjustments and innovations which were previously achieved through the efforts of many generations have now to be coalesced into the strivings of one generation. With this growth of knowledge are also changing the physical, intellectual and moral facets of the universe. The old values are getting a new meaning. The universities have formidable role to play in the interpretation of these changes. The greatness and strength of the staff and students of the universities now lies in the power to give correct solutions and fresh explanation to these developments in the society.

The comparative newness of the University of Dibrugarh may be considered a good opportunity as it provides more scope for innovation and experimentation. The university community in our country, Shri Ahmed said, cannot afford to remain aloof in an ivory tower and its primary responsibility is to produce a stream of intellectually well-trained men and women to fill the positions in society that are crucial in its development. It is encouraging to note that this university has particularly devoted itself to the study of Applied Geology and Petroleum Technology—both of which are relevant to the development of this region. This area also has some of the

rare species of fauna and flora of the country and it deserves full attention of the department of Life Sciences. To study all these unique specimens is bound not only to add to our knowledge but may yield results of great practical value.

Besides being a link between the university and the community at large, the university has to be a place for academic scholarship and higher learning. The university must address itself to the live problems facing the society and these problems may be economic, social or technological. The need for population control, spread of literacy, concern for cleanliness, environment and human settlements are problems which demand immediate attention.

The third related challenge is the need for the life long education. The present day growth of knowledge has been so rapid that it has created the enormous problems of obsolescence. The concept of life long education in our country is still at a conceptual stage. But it has a great relevance to concrete situations. It is, for example, no longer possible to attain a particular degree of knowledge and expertise at a certain age which would be sufficient and relevant for all times to come. Changes in the conception and technology of things makes it imperative on all of us to go on learning continuously if we do not want to be branded as obsolete. This emphasis on life long learning cannot but leave its fall out on the teacher and the taught relationship which has become more informal. It has also proved that the teachers have to learn as much and perhaps more than the students in their charge if they have to maintain their hold and command their respect and admiration.

Another serious challenge before the university system is the growing hiatus between the products of universities and the masses. The pattern of life and thought of these two sections have become so different and the alienation of the former so acute that it leads us to sit up and think if it is at all necessary to spend such large sums of money on higher education. The disinclination of our doctors, engineers and other professionals to serve in the rural areas is the reflection of this alienation. Those charged with the management of universities and institutions of higher learning must devote themselves to finding ways and means to remedy this situation and suggesting concrete institutional and other changes that may be necessary. It is a sad fact that we are spending vast sums on training of highly specialised personnel for migration to developed countries. Akin to these challenges is the imperative need of nurturing local capabilities in relation to local needs and resources. In other words it means that apart from and in addition to developing expertise in high technology to keep pace with the latest advances in the world, there is urgent need to develop appropriate technology mainly for two reasons. Firstly such technology will enable developing countries like ours to develop labour-intensive production techniques suited to their own situation and requirements which will make possible the gradual emancipation of the people through diversification into non-curricular activities.

Secondly, unless we develop such appropriate technologies we will remain captives of social and economic dynamics. This would lead us to repeat the now largely irrelevant development patterns of industrialised nations. We must develop educational systems that are less expensive, more related to development needs of the country and to local capabilities and resources.

Science as Instrument of Social Change : Dr. Sethna

Dr. H. N. Sethna, Chairman, of Atomic Energy Commission, while delivering the 56th convocation address of the Mysore University called for an extensive communication network in the country for the quick diffusion of knowledge of science and for involving people in science education. He suggested the formation of multi-disciplinary groups having system approach to social problems in energy, transportation resources, environment and health.

Dr. Sethna spoke on the role of science and technology in India. He said that at the Bhabha Atomic Research Centre several groups were working in a comprehensive manner on energy, environment safety and public health issues of the atomic energy programme. Only such groups could work in applying science and technology for developmental change by tackling a variety of inter-dependent issues. The Europeans called them the 'problematique' which does not get solved if we adopt a project decision approach without considering their interactions and time perspective. Dr. Sethna oversaw exciting integrative institutional developments triggered off by science and technology to involve Governments, industry, the research sector and people in facing the 'problematique'. He said that our science policy-making apparatus should keep this perspective in view and should resist short-term orientation and clamour for quick pay-off of many of our social institutions.

Dr. Sethna said that science and technology were the most competent instruments they have today for bringing about social changes. There were no alternatives. Their use however demanded wisdom and a sense of values. If the scientists and technologists realise that science is inherently limited in its ability to deal with major questions of public policy, they can begin to

make meaningful contribution in generating social options. Such options can be generated only if science and technology does away with excessive emphasis on the discipline-oriented approach.

He referred to certain misconceptions about scientists and technologists. He was willing to concede that the image of the scientists as a Frankenstein was true to some extent. People who worked at the Manhattan project knew the destructive potential of nuclear weapons. American scientists who worked on chemical and biological warfare knew about its potential applications in Vietnam. At the recent Pugwash conference in Madras a reference was made about research in the use of weather and climate for warfare. The awesome potential of computers in handling enormous amounts of data, reducing individual privacy to nothing and the possible manipulations through genetic engineering were indeed frightening. But the use to which a scientific discovery was put, he said, was entirely a non-scientific decision. For example, the fast breeder technology had enormous potential to release energy contained in nuclear fuels. Its use of plutonium had an element of risk. Plutonium was highly toxic and was one of the key materials in a nuclear weapon programme. The handling, transportation, use and storage of plutonium were difficult operations. Considering the benefits of breeder technology Dr. Sethna said that he willingly took the risk of using plutonium in the first successful underground nuclear explosion in Rajasthan deserts in May 1974. The Plutonium problems presents an acceptable level of risk. In any technology, there are risks and side effects. One can only minimise them to an acceptable level. If we are looking for a technology with no side effects then it can only be pipedream.

Dr. Sethna said the scientists

had a significant role to play in integrating and expanding science and technology not as apologists or propagandists. The universities have a major role in taking science to the people through their extension and continuing education programmes. Only in times of spectacular events like the peaceful nuclear experiment or launching of a satellite coverage of science and technology was relatively increased. Dr. Sethana pleaded fervently for a better and more extensive communication to the public so that they may appreciate the drama, the mystery, the human relevance, the success and the failures of science and technology.

PERSONAL

1. Dr. R. V. Singh has taken over as the Vice-Chancellor of Lucknow University w.e.f. 19th December, 1976.
2. Dr. B. S. Jogi has taken over as Vice-Chancellor of Himachal Pradesh University w.e.f. 9th January, 1976.
3. Dr. A. K. Dhan, Vice-Chancellor, Ranchi University, has been nominated by the Government of India as one of the five Directors of United States Educational Foundation in India. Dr. Dhan is also a member of the Board of Governors of IIT, Kanpur and Central Institute of English and Foreign Languages, Hyderabad. He is also a member of the National Commission for Cooperation with UNESCO.
4. Professor R. N. Dogra has been nominated as the Chairman of Board of Governors of Indian Institute of Technology, Delhi. He is the former Director of the Institute and the President of the Association of Indian Universities.
5. Sri M. P. Madhavan Nair has taken over as the Registrar of University of Cochin w.e.f. 2nd February, 1976.

ROUND UP

VCs of Uttar Pradesh meet in Lucknow

The Vice-Chancellors of seventeen State universities met under the chairmanship of Dr. M. Chenna Reddy, the Governor of Uttar Pradesh recently. It was decided to organise three workshops for working out the details for 10+2+3 curriculum. The Allahabad University will host the first workshop while the other two workshops would be held at Lucknow University and Meerut or Gorakhpur University. The State Education Department in collaboration with the University Grants Commission would collect the relevant data and background information for the revision of syllabi and would make literature available for these workshops well in advance.

A State level planning board for all the universities in the State will be set up to act as a central agency for introducing reforms. It will also consolidate the activities of the planning boards of the universities.

The conference decided to have a central valuation of answerbooks of all the universities. Initially all the subjects will not be covered under the scheme but gradually it will be extended to all the faculties. This would avoid delay in tabulation and declaration of examination results. The universities would soon appoint separate controller of examinations and the next academic session would start between July 1 to August 15. The colleges in the State were requested to take full advantage of the grants of the University Grants Commission for setting up book banks.

New Scientific Model for Underdeveloped Nations

Prof. M.G.K. Menon, Scientific Adviser to the Government of India, initiating a group discussion

on 'perspective for science and technology in national development' of Delhi Study Group said that India should lead the developing countries in evolving a new model of scientific development different from the western model followed in industrially advanced countries. Among the developing countries it is only India which has scientific and technological manpower to immediately tackle the scientific problems. The western pattern of development based on increasing pressure on non-renewable resources can not be feasible to developing countries which have huge population.

Prof. Menon said that to evolve a new strategy for development a value system must be inculcated first in the society and science and technology must be applied to implement it. Science till now has remained mainly urban oriented though it is the development of the countryside which is more important. He pointed out the recent achievements of scientists in the Vikram Sarabhai Centre in Trivandrum who while trying to get chemicals from castor oil seeds found that they can also get petroleum as well as a good fertiliser from it.

He complained that there is a serious shortage of fund allocation for scientific research and development both in the private and public sector in the country. As a percentage of gross national product, the fund allocation for scientific research and development is only 4% while it is much larger in the advanced countries.

School of Continuing Technological Education

Shri M. V. Rajagopal, Vice-Chancellor of Jawaharlal Nehru Technological University, Hyderabad, has designed an ambitious programme of continuing technological education for the university. A school of continuing edu-

cation with technological experts is being set up to take charge of this new activity. He said that conventional courses like B. Tech and M. Tech which are being run as an integral part of university's normal obligation constituted only a modest part of the concept of technological education. In view of the acceleration of change in the tools and techniques of production, the supreme need was to bring to the university periodically people engaged in industry and commerce by organising special part-time and whole-time courses for them.

In this connection one of the greatest constraints for the university was the lack of adequate finances. But this should not be allowed to come in the way of the academic diversification of the courses by the university. Otherwise the University would be reduced to the mere maintenance of three or four engineering Colleges. The problem before the university was to launch on a career of academic extension without pinning its hope for this purpose on financial grants. The courses were to be made self-supporting but at the same time the collaboration and involvement of established industrial houses, leading national laboratories and learned bodies like the Administrative Staff College, the Institution of Engineers, the Indian Society for Technical Education, the Institute of Plant Engineers, etc was necessary.

The Vice-Chancellor said that steps had already been taken to contact these agencies and courses like structural engineering, environmental engineering, refrigeration and airconditioning, plant engineering, safety engineering, English for science and technology, etc. have been identified and these courses will start functioning from the next academic session. This was a revolutionary step in technological education and therefore the university deserved the active support of the State Government, the Central Government, the University Grants Commission, the Planning Commission and other institutions.

National Academy of Medical Sciences

The Indian Academy of Medical Sciences in its Madras session elected 16 professors and specialists as its fellows. This year the Academy is also conducting the national medical examinations to confer the higher postgraduate degrees in different disciplines of medicine. The written test will be held by the National Board of Examination at Delhi, Chandigarh, Calcutta, Bombay, Hyderabad and Madras. About 300 doctors will appear for these examinations. The Viva-Voce, clinical and practical examinations of the successful candidates will be conducted at the All-India Institute of Medical Sciences, New Delhi, where the Inspectors of the Medical Council of India will oversee the examinations.

The national examinations would ensure "higher uniform standards" as the standard of M.D. and M.S. varied from university to university. The main objective of the national examinations is to check the tendency of the young medical scientists to go abroad and seek foreign qualifications when there is no reciprocity. The senior fellows of the Academy have agreed to lecture in various institutions and medical colleges to apprise the postgraduate students about the advantages of taking such examinations. The Academy also decided to redesignate itself as the National Academy of Medical Sciences.

NEHU's new Venture

The Department of Continuing Education, North-Eastern Hill University has started organising various programmes for the benefit of the community. The first in the series is the course in Foods and Nutrition organised for housewives and others interested in nutritional problems. The course is intended to develop a better attitude and conviction relating to the importance of nutrition in regulating one's own health and that of the family and individuals of the community. It would make the participants aware of the role

of food in building the body and will enable them to recognise the nutritive requirements of individuals and the variations that may be imposed on the food needs by activity, pregnancy, lactation, growth, old age or disease.

The courses was inaugurated by Shri S. D. D. Nichols Roy, Meghalaya's Minister of Industries. He stressed the value of proper nutrition in the life of the people and added that the course in Foods and Nutrition would not only help women but also men to become aware of the need of nutritious food. He advised people of this region to increase their intake of non-cereals to keep them healthy.

Prof. L. R. Shah, Director of the Department of Continuing Education said that non-formal education and continuing education of men and women should be accepted as a major responsibility by the universities and the State. Dr. C.D.S. Devanesen, Vice-Chancellor of the university also emphasised the duty of the university to extend educational facilities to these activities. There was more and more need of non-formal education so that those who did not or could not go to a university or a college as regular students may not be deprived of the knowledge which is necessary for them.

Bihar Ordinances

The Bihar Governor has promulgated an ordinance bringing about far reaching academic and administrative changes in the pattern of the six universities in the State. The term of office of the Vice-Chancellors would now be limited to three years only. They have been empowered to nominate persons to the elective posts as election of members of Senate, Syndicate and the Academic Council have been delayed due to certain circumstances. The posts of Registrars and Principals of affiliated colleges have been made transferable. The Registrar of one university can now be transferred to another university after mutual consultation with the Vice-Chancellors. Similarly the Principal of one college may be trans-

ferred to another but within the jurisdiction of that particular university. The age of supernuation of the university and college teachers and non-teaching staff has been reduced from 62 to 60 years. The ordinance has also provided for compulsory retirement of both teaching and non-teaching staff of universities and colleges at the age of 50 in case their retirement becomes necessary in view of the university or college authorities. A ban has also been imposed on the teachers engaging themselves in private tuition. They have been prohibited from launching model questions, guess papers, notes etc.

Osmania honours Herzberg

The Osmania University conferred the degree of Doctor of Science (Honoris Causa) upon Professor Gerhard Herzberg who is world's foremost molecular spectroscopist and has made outstanding contribution to the knowledge of the electronic structure and geometry of molecules. He is a winner of Noble Prize in Chemistry in 1971. Prof. Herzberg is the Head of the Division of Pure Physics in the National Research Council, Canada. He visited Osmania University during 1956 and lectured to the Faculty of Science.

The world of modern science has gratefully recognised the influence of Prof. Herzberg's work on quantum mechanics and physical chemistry and also on the advancement of technology. His discoveries have particularly given a new dimension to modern chemistry and have aroused a new interest in researches in chemical reactions of gases. Prof. Herzberg's singularly creative work has some interesting links with the work of two Indian physicists, C.V. Raman and S. N. Bose.

Among the many distinctions Professor Herzberg has received in recognition of his great contributions to modern science are medals including those awarded by the Universities of Liege and Brussels and by the American Chemical Society, the Chemical Society of London and the Royal

Society of London. He is a fellow of the Royal Society of Canada and the Royal Society of London and in this country Prof. Herzberg is an honorary fellow of the Indian Academy of Sciences and the National Academy of Sciences and the Indian Physical Society. He was awarded the Joy Kissen Mookerjee Medal of the Indian Association for the cultivation of Science in 1954.

Gauhati Opts for New Pattern

The Gauhati University has decided to introduce a three-year degree course preceded by the two-year pre-University course with effect from the session 1978-79 in the faculties of Arts, Science and Commerce. The Academic Council has also decided to introduce a course of studies leading to the Bachelor of Science degree in Nursing in the faculty of Medicine and a Bachelor's degree course in Music and Fine Arts in the faculty of Arts. The University Grants Commission has also sanctioned the creation of eight posts of professors, seventeen posts of readers and one post of lecturer for different departments during the fifth five year plan.

Khairagarh's Plans for Community Involvement

Indira Kala Sangeet Vishwa-vidyalaya has drawn up a scheme for involving the village communities with its programmes. The painting department would provide extension services to the adjoining rural areas. Under this scheme a few villages around the headquarters of the university would be adopted. The faculty and students would study the wall and other paintings in those villages with a view to find out the historical and religious background through discussions with the villagers and rural talents. This will enable the department to have a systematic study of the folk art together with the detailed history of their culture. At the same time it would also enable the university to locate the rural talents usually remaining un-noticed and

uncared for. The university also proposes to pick up available rural talents for regular education in the university. Apart from this new direction for involvement of rural population in the university programmes, the department of painting will also provide extension services for those villagers who cannot afford to come to the university for regular education and also for their women folk. If the scheme makes a headway other departments will also undertake similar projects.

Geophysics Seminars

With the collaboration of the Indian National Science Academy, New Delhi, the Centre of Exploration of Geophysics of Osmania University organised a winter school in the exploration of Geophysics. The course was open to geologists and engineers working in teaching institutions and organisations for persons interested in the exploration of ground water, mineral and petroleum resources and other allied engineering problems. Professor V. I. S. Bhim Shankaran was the Director of the School. Another winter school of 'Astrophysics of collapsed objects and gravitation' was held under the sponsorship of Tata Institute of Fundamental Research, Bombay.

UN University Development Programmes

The Council of the United Nations University met in Caracas, Venezuela recently to consider the proposals for the University's initial programme of research into critical problems facing the world community. It reviewed the university's programme of work and considered the plans for the publication of scholarly studies, its institutional relationships with other organisations of the United Nations system and the progress in plans to associate young scholars with the university's work.

The Rector of the university, James M. Hestler, was assisted in his planning cycle by three panels of 63 experts appointed for working out the details of the proposals for the work to be under-

taken in each of the university areas of current emphasis. It has been decided that the three priority areas in which the university will initially concentrate its resources will be global problems of hunger, of human and social development and the use of management of natural resources. The university's programmes will consist of advanced research carried out under its sponsorship in a network of institutions that wish to associate themselves with the university's work.

Centre for Continuing Education

The University Grants Commission have approved the proposal of the University of Jammu to establish a centre of continuing education. A grant of Rs. 24,900 has been sanctioned for this purpose. The State Government would be providing another sum of Rs. 12,000 to meet the initial expenditure.

The centre shall organise short-term retraining and in-service training courses and refresher programmes for the development of intellectual and professional competence and engaged in the extensive work for community development in conformity with the guidelines laid down by the University Grants Commission.

The university is planning to start immediately four short-term courses on : (1) Kitchen Gardening; (2) Taxation of Income and Profit; (3) Law for the layman, and (4) Course for improving English for the benefit of the people of the area. A number of other programmes would follow in the coming academic session. The university would also be organising correspondence course for BA and BCom degrees with effect from the next session.

Course in Technical Archaeology

The Department of Indology of Osmania University has been re-organised as the Department of Ancient History, Culture and Archaeology under the Faculty of Social Sciences from the academic year 1975-76. A number of

new courses have been framed which include Political History of Ancient India, Indian Art and Architecture, Indian Epigraphy, Economic History of Indian Society and Religion in Ancient India. A course in Technical Archaeology is also being introduced to cater to the needs of the growing demand of this area. Introduction of courses like Relevance of Indian Culture to Modern times, Musicology and Tourism would make the courses of the department more job-oriented.

Medical Students Awards

The Indian Drugs and Pharmaceuticals Limited have instituted three national medical essay awards. The subject of the essay this year was: 'The present system of medical education has elitist orientation with an urban bias'.

Dr. Binayak Sen of Christian Medical College, Vellore, says that the current medical system is irrelevant to the country's needs and there is no use in blind aping of the foreign system with an inbuilt bias for the public school education in the matter of selection of students for medical education. He has suggested in his essays that medical education be treated as a public resource financed by public bodies who can also sponsor dedicated candidates. Thus, he argued, would induct a commitment in the young students to serve the people. He wants that medical graduates be trained in district hospitals to offset the tendency among doctors to work in big colleges rather than serving the rural population. He received a cash award of Rs. 5000 along with a plaque and a IDPL instrument box.

Dr. Mukund Govind Vaidya who got the second place is doing his M.D. in Radio Diagnosis at Chandigarh. He felt that a shake up of the medical system was called for if 'we are serious in our attention to supply rural areas with doctors'. He was given Rs. 3000/- along with other gifts.

The third position went to Dr. P. S. Sugathan of Calicut Medical College who received

Rs. 2000/- and a plaque. He has suggested in his essay the introduction of the ayurveda physicians into the health services, building up of auxiliaries and setting up of a national medical university to achieve uniformity in medical education in the country.

Unesco Grant for Surat

The South Gujarat University has received Unesco grant for its project on microteaching, a new strategy of training teachers which required close circuit television. The university department of Education is however trying to evolve a strategy in which close circuit television can be dispensed with. The University would be participating in the international conference on micro teaching to be held at the University of Lancaster, U.K. Dr. G.B. Shah would be attending the conference on behalf of the university and would review the details of the cooperative efforts of the faculty of Lancaster in this project.

Zaheer Science Lecture

Prof. F. G. Edwards, Vice-Chancellor, University of Bradford (UK), while delivering the Zaheer Science Foundation lecture on 'Science Society and Education' in New Delhi said that higher education in specialised subjects should be restricted to those who are exceptionally gifted and dedicated to particular disciplines. The majority of the graduates should be given liberal course so that a 'flexible and adaptable cadre' of scientific workers is available. They should however be able to learn 'additional expertise' for specialised jobs where necessary. The syllabi should be closely integrated around a central theme such as agricultural or industrial production with the understanding that all graduates should be regarded as employable in almost any field.

Prof. Edwards warned India against following the western model in science education. In a developing country science had to be relevant to the needs of the country. For such an education certain drastic changes had to be brought about in the social structure otherwise there is a danger

that the idea of relevant education may be abused to preserve the social status quo. An overwhelming proportion of highly trained personnel worked in Government research establishments in developing countries. The work in the Government establishments remained mostly untransmitted to the productive sectors in the private section which lacked adequate scientific and technological personnel. This results in a second kind of brain drain. Intelligence is drained away from basic productive sectors.

Prof. Edwards said that the earlier attempts of some developing countries to plan scientific and technical manpower along fairly rigid lines on a long term basis had largely failed except in few cases like primary school teachers and medicine. The failure was due to many reasons. The plans did not take into account sudden changes in the demand for particular specialists following technological innovation. Economic fluctuations also created sudden demands for certain specialists in a time much shorter than required to train them. The planning of technological and scientific demand areas has not been scientifically coordinated with the overall national development planning. In other words science policy has not been scientifically integrated with the overall national policy. The specialists educated in higher educational institutions were inflexible in their attitudes. They have been led to expect careers which fitted their particular expertise. Prof. Edwards suggested that the higher education policy should be integrated into the overall national development policy of the country.

M.Phil likely for Delhi

The Delhi University has decided in principle to start M.Phil degree course in the Arts, Science, Business Management, Social Sciences, Mathematics, Music and Fine Arts Faculties from the next academic session. The M.Phil degree may also be made a prerequisite for a student wishing to pursue a Ph.D. course. In certain outstanding cases however stu-

dents may be allowed to register for Ph.D. course directly. These decisions were taken by the Academic Council of the University on the recommendations of Das Gupta report. Various university departments are likely to send their suggestions and the matter will be finally considered by the Executive Council. The Universities of Aligarh, Andhra, Himachal Pradesh, Jawaharlal Nehru, Kerala, Madurai, Meerut, Mysore, Punjabi, Ravi Shankar, South Gujarat and Vikram have already introduced M.Phil course in their faculties.

Winners of Times Contest

Mr. Mukesh Patel of Sir A. L. Shah Law College of Ahmedabad was adjudged the winner and Miss Radhika P. Shah of H. L. College of Commerce runner-up in the fourth regional 'Times Public Speaking Contest' held recently in Ahmedabad. The panel of judges included Miss Indumati Mehta, Mr. Nandkumar Pathak and Mr. Sumant Majumdar besides the representatives of the Times of India, Ahmedabad. Mr. Mukesh Patel had been a member of the Syndicate of Gujarat University. He was selected earlier by the University to visit Japan and other Far Eastern countries.

Bombay's Innovations

The Bombay University in its endeavour to eliminate the possibility of leakage of question papers has introduced a major examination reform. The examiners and paper setters will now be asked to frame three sets of question papers for each of the subjects at the university examinations to be conducted in March/April this year. Initially all the first-year and intermediate examinations will be covered by this scheme which will be subsequently extended to other degree examinations.

The university would select one of the three question papers for the ensuing examination, earmark another one for its mid-term examination scheduled for October and the third one would be kept in reserve. This experiment is likely to obviate the possibility of leakage of question papers. The

university authorities announced that the choice of the question papers to be actually given for the examination would not be made till the last moment. This will further ensure the secrecy.

Azad Trophy for Delhi Varsity

The University of Delhi has won the Maulana Abul Kalam Azad trophy for the year 1974-75 for participation of its students in national and international tournaments. Guru Nanak was the runner-up while the Panjab secured the third position.

The trophy was instituted in 1956-57 to arouse interest among college and university students in games and sports. The Delhi University has been getting the trophy continuously for the last four years. Panjab has won for nine years, Bombay University for two years and Kurukshetra for one year in the past.

UGC Assistance for Colleges

During the fifth five year plan the University Grants Commis-

sion will provide assistance to colleges primarily to help in strengthening their faculty, improving their libraries, laboratories and in providing them with workshop and other similar facilities. This would enable the colleges to achieve and maintain proper standards.

The Commission provides assistance to arts, science and commerce colleges affiliated to universities and brought under section 2(f) of the UGC. The enabling clause for the colleges to take advantage of this assistance of the Commission during the fifth plan period inter-alia provides that there should be a minimum enrolment of 400 students excluding pre-University, pre-degree classes and a staff of at least 20 suitably qualified permanent teachers. In the cases of colleges providing two-year degree course, the minimum required enrolment would be 270 and at least 15 suitably qualified permanent teachers. For the colleges located in backward areas, the Commission may relax these norms suitably.

STATEMENT ABOUT OWNERSHIP AND OTHER PARTICULARS ABOUT UNIVERSITY NEWS

Form IV
(See Rule 8)

- | | |
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Rouse Avenue, New Delhi. |

I, Anjni Kumar, hereby declare that the particulars given above are true to the best of my knowledge.

Sd/-
Publisher

BHU Fifth Plan

The Banaras Hindu University has submitted Rupees seven crores fifth five-year plan to the University Grants Commission for ensuring high academic standards. Some of the salient features of the fifth plan of the university are centred round providing ample student amenities and campus development. A sum of Rs. 4 crores would be required to implement the various academic programmes. The campus has 27 hostels covering 5500 students in more than 5000 rooms. It is proposed to provide single seated rooms for them. The improvements of the hostels and living accommodation will be given top priority. A scheme for the supply of essential supplies to the students has also been worked out. The university has taken up the responsibility of providing food and other articles to the boarders. A sum of Rs. 10 lakhs has been earmarked for the construction of super market on the campus. Another sum of Rs. 5 lakhs has been set apart for starting a book bank. An auditorium with the capacity of 2,500 is proposed to be built at a cost of Rs. 50 lakhs for arranging cultural and other activities. Rs. 6 lakhs have been provided for health centres which would cover over 8000 students. Another sum of Rs. 8 lakhs has been set apart for the construction of quarters for sub-urban students. It is also proposed to reorganise the proctorial staff and streamline the telecommunication service particularly telephone arrangements on the campus. The University Grants Commission has also been urged to sanction a sum of Rs. 2.05 lakhs for the expansion of hobby centre which offers training facilities to students in photography, telecommunication and other trades.

P.G. Centres in Andhra to be autonomous

The Governor of Andhra Pradesh has promulgated an ordinance conferring upon the Andhra, Osmania and Sri Venkateswara Universities the power to confer autonomous status on the three

postgraduate centres at Guntur, Warangal and Anantpur. The postgraduate centres would not have the right to confer degrees or diplomas which would continue to be awarded by the universities. The ordinance provides for the Chancellor of the university to appoint a Director to head the postgraduate centre. He shall have the power to enter into agreements, sign documents and authenticate records on behalf of the postgraduate centre and perform such other duties as may be prescribed. The centres would have Academic Planning Board, Executive Council Finance Committee and Board of Studies.

Hooker Award

The Indian Agricultural Research Institute, New Delhi has instituted the Hooker Award for outstanding contributions in any field of research in agriculture, animal husbandry and fisheries. The award is given once in two years. The legacy left by Mr & Mrs Richard Hooker of Longmeadow, USA, is being used for the purpose of improving food conditions in India. The award carries a prize of the value of Rs. 5000 - in cash or kind or both plus scroll for outstanding research in any field of agriculture.

INDIAN SCHOOL OF MINES DHANBAD

No 217651

Notice

Dated: 18-2-1976

The Indian School of Mines will conduct an examination for the final year students of its B. Tech (Mining) programme according to the syllabi prescribed by the Board of Mining Examination under the Mines Act (for the grant of First Class Mine Manager's Certificate of Competency) in the following three optional subjects below:

Subject	Date
1. Mine Management, Legislation and General Safety	— 26.4.76 (From 2 P.M.)
2. Methods of Working (Metal)	— 28.4.76 (From 9 A.M.)
3. Methods of Working (Coal)	— 28.4.76 (From 2 P.M.)

The Academic Council of the School has decided to permit its own graduates (and AISM diploma-holders) in Mining, to appear at the said examination. ISM alumni wishing to avail of this facility may send their application in the prescribed form, duly completed, along with a fee of Rs. 47 - so as to reach the Registrar, Indian School of Mines, Dhanbad-826004, by March 31, 1976. Applications received after the said date will not be entertained. Candidates who have not passed the Gas-Testing Examination under the Mines Act, will not be eligible to appear in the above examination.

The prescribed application form and a copy of the syllabus can be obtained from the Registrar, Indian School of Mines, Dhanbad-826004 on sending a self-addressed and stamped envelope

M. S. RAMAMURTHY
REGISTRAR

Health Care Courses suggested

Dr. C. Gopalan, Director-General of Indian Council of Medical Research while inaugurating the T.B. Chemotherapy Centre Building in Madras made out a case for creating a body of scientific personnel trained in promoting and preventive health care. He said that it is time to introduce a BSc course in Health Science. He however made it clear that he was not talking of barefoot doctors or the LMPS. A great deal could be done specially in rural areas by people who had basic training in the fundamentals of health care. The 'implementation gap' in many public health programmes was mainly due to lack of middle level personnel. All the major health problems of the country continued despite our best efforts. The doctors were not inclined to work in villages. The basic problems of health care remained to be tackled. The health science graduates could do such work for immunisation and propagation of simple family planning techniques.

The Director-General called for the building up of teaching cadre whose members would devote themselves completely to teaching and research. The Indian Council of Medical Research was always ready to allocate funds for teaching and research. He had prolonged discussions with the Vice-Chancellor for a better collaboration of the University of Madras with the ICMR.

W.B. Varsity Ordinance

The West Bengal Government has promulgated an ordinance laying down four points to be observed by the universities with regard to their budgeting and financial activities. The universities without the prior approval of the State Government will not be allowed to incur any unbudgeted liability. No new posts can be created without the prior sanction of the Government and no changes in pay and emoluments would be allowed without their concurrence. The ordinance

has sparked a controversy in university circles. A meeting of Vice-Chancellors with the Chief Minister and Education and Finance Ministers is being arranged to discuss the various provisions of the ordinance.

French aid for Madras IIT

Under a bilateral agreement signed between India and France, the Indian Institute of Technology, Madras, will soon have the French collaboration for developing highly sophisticated ~~aero~~ space devices in its Aeronautical Engineering Department.

According to Dr. K.A.V. Pandalai, Director of the institute, this collaboration is the first to be entered into by the IIT which was upto now aided by West Germany. The agreement envisages exchange of facilities by both sides,

reservation of seats for aeronautical engineering graduates of IIT for higher education in aero space field in France, gifts of sophisticated equipment for developing the laboratories in important areas such as gas dynamics guidelines and control rocket, propulsion, fibre reinforced plastic structures and building up of technical library facilities relevant to aero space field.

FEES GOING UP

Following a recommendation by the Secretary of State for Education and Science, the tuition fees of most British Universities are expected to go up by 30% for the academic year 1976-77 to around £460 for full time students from overseas and to about £182 for home full-time students.

INDIAN SCHOOL OF MINES

DHANBAD-826004

Competitive Examination

Direct Admission

The Indian School of Mines, a deemed university, invites applications for direct admission to the 3rd year of the 5-year programme leading to the award of M.Sc. degree in Applied Geophysics. Only a limited number of seats are available.

A Competitive Examination will be held on Friday, the 7th and Saturday the 8th May, 1976. The new session will commence on **June 28, 1976.**

The likely centres for the Competitive Examination are:

Ahmedabad, Bangalore, Bhopal, Bombay, Baroda, Calcutta, Chandigarh, Coimbatore, Cuttack, Delhi, Dhanbad, Dighori, Gauhati, Gudur, Hyderabad, Jaipur, Jodhpur, Keonjhar, Kodarma, Lucknow, Madras, Muzaffarpur, Nagpur, Patna, Raipur, Raniganj, Sahdol, Simla, Srinagar, Trivandrum, Waltair.

Prescribed qualification: Candidates must have passed the B.Sc. degree examination of a recognised university with Physics, Mathematics and Geology or Chemistry and Higher Secondary or equivalent examination with Physics, Chemistry, Mathematics and English. Candidates appearing in the B.Sc. examination are also eligible to apply but must produce necessary evidence of having passed the examination by **June 28, 1976.**

Prescribed application forms and Memorandum of Information will be available upto **March 10, 1976** on payment of Rs. 3/- by **Money Order** payable to the Registrar, Indian School of Mines, Dhanbad-826004.

Applications in the prescribed form complete in all respects should reach the undersigned latest by **March 15, 1976.**

(M. S. RAMAMURTHY)
REGISTRAR

All-India Ayurveda Institute at Jaipur

The Union Health Minister, Dr. Karan Singh, inaugurated recently the All-India Ayurveda Institute at Jaipur which has rich heritage of learning and research in Sanskrit and Ayurveda. The institute is designed on the pattern of the All-India Institute of Medical Sciences, New Delhi. The national institute seeks to promote the growth and development of Ayurveda in all its important spheres and seeks to bring in one place the educational and clinical facilities of the highest order. It would develop the teaching of undergraduates as well as provide facilities for higher research in various aspects of this indigenous system of medicine. In order to achieve these objectives, the institute will not only set its own laboratories, libraries, herbal farms, pharmacies and hospitals but will also finance projects of eminent institutions and scholars engaged in the science of ayurveda.

The institute is the outcome of the strides made under the Indian Medicine Act passed by the Parliament in 1970. It will consist of the Regional Research Institute at Jaipur, the local Government Ayurvedic Hospital and College and Seth Surajmal Bombaywala Hospital with a provision to amalgamate similar other organisations. The institute would be affiliated to the University of Rajasthan but would ultimately acquire the status of an autonomous body and would be empowered to grant its own degrees and diplomas.

A sum of Rs. 10 lakhs has been donated by a number of philanthropists which will be utilised for the development of a big botanical garden with a pharmacy and a library containing rare books and manuscripts. The campus will be developed on a 24 acres plot of land behind the Rajasthan University. Under the proposed programme separate hostels for boys and girls would be constructed and arrangements would be made to provide more amenities

to the patients. Besides refresher courses would be shortly conducted for para-medical staff including nurses, compounders, etc. The first governing council of the Institute will consist of 13 members with Union Health Minister as its President and Rajasthan State Minister of Health as its Vice-President. The other ex-officio members include, Vice-Chancellor of Rajasthan Univer-

sity, Health Secretary, Government of India, Financial Adviser to Government of India in the Ministry of Health, State Health Secretary, Director of Ayurveda Department, Rajasthan Government and eminent ayurvedic physicians like Mr. Shiva Sharma and Mr. D.R. Chaurvedi. The financial liability of the institute will be shared in equal proportion by the Central and State Governments.

INDIAN SCHOOL OF MINES DHANBAD-826004

Entrance Examination—1976

The Indian School of Mines, a 'deemed' University, invites applications for the Entrance Examination for admission to its 5-year integrated programme of studies leading to the award of (a) B. Tech degrees in Mining Engineering and Petroleum Engineering, and (b) M. Sc. degrees in Applied Geology and Applied Geophysics. A B.Sc. (Hons.) degree in Applied Geology and a B.Sc. degree in Applied Geophysics is awarded after successful completion of three years of the 5-year programme.

The Entrance Examination will be held on Friday, the 7th and Saturday, the 8th of May 1976. The new session will commence on June 28, 1976.

The likely centres for the Entrance Examination are:

Ahmedabad, Bangalore, Bhopal, Bombay, Baroda, Calcutta, Chandigarh, Coimbatore, Cuttack, Delhi, Dhanbad, Dibrugarh, Guwahati, Gudur, Hyderabad, Jaipur, Jodhpur, Koniagar, Kodarma, Lucknow, Madras, Muzaffarpur, Nagpur, Patna, Raipur, Raniganj, Shahdol, Simla, Sonagar, Trivandrum, Waltair.

Prescribed Qualifications: A pass in the Higher Secondary (Science stream with Chemistry, Mathematics and Physics, or in the technical stream) OR Pre-University or equivalent examination (with Physics, Chemistry, Mathematics and English) OR Indian School Certificate Examination (with Mathematics, Physics and Chemistry). Or 1st year examination of the 2-year Intermediate OR F.Sc. programme (with Physics, Chemistry, Mathematics and English). Those who have appeared in the above examinations are also eligible to apply but should submit necessary evidence of having passed the qualifying examination by June 28, 1976. **Age Limit:** 20 years for B. Tech. in Petroleum Engineering and 21 years for other programmes as on October 1, 1976. The age limit is relaxable by three years for Scheduled Caste/Scheduled Tribe candidates.

Prescribed application forms and Memorandum of Information may be available upto March 10, 1976 on payment of Rs. 3/- by Money Order payable to the Registrar, Indian School of Mines, Dhanbad-826004.

Applications in the prescribed form complete in all respects should reach the undersigned latest by March 15, 1976.

M. S. RAMAMURTHY
REGISTRAR

- (iii) Asstt. Professor: (a) A first or second class Master's Degree of an Indian University or equivalent Qualification of a foreign University in the subject concerned.
(b) A research degree in the subject or experience of teaching degree or post-graduate classes will be a desirable qualification.
(c) Knowledge of Hindi will be desirable

DEPARTMENT OF ZOOLOGY

1. One post of Professor (Permanent)
Qualifications: Same as prescribed above for a Professor

DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

1. One Post of Professor of Political Science (Permanent)
Qualifications: Same as prescribed above for a Professor
Desirable: Experience of teaching Public Administration
2. One Post of Asstt. Professor of Political Science (Permanent).
Qualifications: Same as prescribed above for an Assistant Professor

DEPARTMENT OF HISTORY

1. One Post of Reader (Permanent)
Qualifications: Same as above prescribed for a Reader.
Desirable: Specialisation in Medieval or Modern Indian History
2. One Post of Asstt. Professor (Temporary).
Qualifications: Same as prescribed above for Asstt. Professor.
Desirable: Specialisation in Medieval or Modern Indian History

UNIVERSITY COLLEGE OF EDUCATION

1. One Post of University Professor (Permanent)
Qualifications: Same as prescribed above for a Professor. He will also be ex-officio Principal of the College
2. One Post of Lecturer (Permanent)
Salary scale of Rs. 400-25-500-10-680-EB-40-800
Qualifications: At least a Second Class Master's Degree in Education
Desirable:
(i) A research degree in the subject and some experience of teaching in a training institution
(ii) Ability to handle Methodology of teaching Sanskrit.
(iii) Knowledge of Hindi.
3. One Post of Asstt. Professor (Permanent) - Salary scale Rs. 500-10-680-EB-40-800-50-900
Qualifications: Same as in the case of Lecturer with at least 3 years experience of teaching B.Ed. M.Ed classes.
Desirable:
(i) A research degree in the subject.
(ii) Ability to teach Science subjects to trainees;
(iii) Knowledge of Hindi.

4. One Post of College Professor (Permanent) - Salary scale Rs. 680-40-800-50-1000-EB-50-1150.

Qualifications: Same as in the case of Lecturer with at least 6 years experience of teaching M.Ed. classes or 10 years experience of teaching B.Ed. classes.

Desirable:

- (i) Either a degree of the Doctorate Standard in the subject or published work of high standard.
- (ii) Possess teaching experience of Research Methodology and Statistics to post-graduate classes
- (iii) Knowledge of Hindi.

S. N. Kaveeshwar
REGISTRAR

Music Chair for Madras

The Madras University's Department of Indian Music will have a full-fledged professor as well as readers, lecturers and instrumentalists from the next academic session. Like other departments of study, the music department will be developed to prepare research scholars for Ph.D.

Madras Evening Courses

The Syndicate of the Madras University has approved the recommendations of its sub-committee that the four-year

period of evening course for degree students should be reduced to three years as in the case of regular college students. The number of working days in an year will however be increased from 180 to 225. The Syndicate also accepted the suggestions of the committee that the fee levied on evening college students should not be higher than those collected from day scholars.

P.G Course in Bengali

The Bhagalpur University has decided to introduce postgraduate courses and research in Bengali language and literature to commemorate the Sarat Chandra centenary year. The university also has a proposal to rename itself as Vikramshila Vishwavidyalaya.

Revaluation Reintroduced

Facilities for revaluation of answer books of examinations has been reintroduced in the University of Lucknow. This facility was however withdrawn on the report of the S. D. Singh Commission in which numerous cases of under and over valuation were pointed out.



"One way to obviate the problem of the unemployed graduates would be to lengthen all courses indefinitely so that no one graduates....."

Indian School of Mines

Dhanbad-82004

Advertisement No. 420020/75

Dated February 20, 1976

Announcement of Faculty Positions

The following vacancies exist at the Indian School of Mines—a 'deemed University' under the University Grants Commission Act, 1956.

The School conducts a five-year integrated programme leading to the award of B.Tech degrees in Mining Engineering and Petroleum Engineering, and M.Sc degrees in Applied Geology and Applied Geophysics. At the Master's degree level in engineering discipline, it conducts a two-year industry-oriented M. Tech programme in Mining Engineering in several topics including Mine Planning and Design and has started a similar programme in Opencast Mining with effect from 1975-76. A 3-year part-time M.Tech programme in Coal Mining Machinery has also been started in January 1976. Three one year post-graduate programme are intended to be started in 1976-77 an M.Sc (Tech) programme in Mineral Exploration, and M.Sc (Tech) programme in Mining Geophysics, and a DISM programme in Fuel Technology. The School has on its roll 40 Research Scholars and Fellows working for its own M.Sc and Ph.D. degree in various disciplines, and has been approved as a QIP Centre for M.Tech; Ph.D. in Mining Engineering.

The School has an ambitious programme of continuing education tailored to meet the needs of the mineral industries. A centre for Study in Mine System Design is being set up at the School as also a Centre of Higher Studies in Ore Deposit. It has an approved scheme of institutional consultancy and is preparing for a more purposeful role in the R & D field.

General Job Description

Teaching undergraduate and post-graduate students, guiding research students and scholars; preparations and regular updating of course material, etc. Faculty members are expected to participate fully in the School's other curricular (including research) and co-curricular activities and to identify themselves with its corporate objectives.

Pay Scales : Professor : Rs. 1500-60 1800-100-2000-125 2-2500 Assit. Professor : Rs. 1200-50-1300-60-1900. Lecturer : 700-40-1100-50-1600.

Besides pay, ISM employees get allowances as admissible to Central Government employees. The total emoluments at the Rs. 1500 - stage currently come to Rs. 1743/-; at Rs. 1200 - stage to Rs. 1543 - and at Rs. 700 - stage to Rs. 889. Higher initial start may be granted to specially qualified and experienced candidates.

Age

Normally not more than 50 years for the post of Professor, 40 years for Assit. Professor and 35 years for Lecturer. Upper age limit relaxable by five years in respect of (i) candidates belonging to Scheduled Castes/Tribes, (ii) displaced goldsmiths and (iii) displaced person from Bangladesh (the erstwhile East Pakistan) who had migrated to India on or before 1-1-1964.

Experience

In teaching, research or industry (including technical and scientific organisations) for Ten years in case of post of professor (including at least five years in position of high responsibility), Six years in case of post of Assistant Professor (including at least three years in position of responsibility), and Two years in case of post of Lecturer, and specialised knowledge/experience in the specified speciality.

In case of post of Lecturer, persons with lesser experience may be considered but, if selected would earn their first increment a year after the completion of two years experience; their probation period would also be counted only from the date on which they acquire the prescribed length of experience.

1. One Professor for Hindustan Steel Chair in Management, in the newly established Department of Industrial Engineering and Management; for a period of three years to start with, but likely to become permanent :

Qualifications :

- (1) A post-graduate degree or equivalent qualification in Management. (Essential).
 - (2) Specialisation in Organisation Development, with publications of high merit in the subject. (Essential).
 - (3) Ability to guide and supervise research and to prepare case studies in management-areas of relevance to the mineral industry. (Essential)
 - (4) Familiarity with the problems of mineral industry. (Desirable)
2. One Professor in Mining Machinery in the Department of Engineering and Mining Machinery; temporary at present but likely to become permanent.

Qualifications :

- (1) A degree in Mechanical, Electrical or Mining Engineering or equivalent. (Essential).
- (2) Post-graduate degree. (Essential but relaxable in case of candidates with special experience in a position of high responsibility, in design/installation/maintenance/inspection of Mining Machinery or Heavy Earth-moving Equipment).
- (3) At least three years's experience of Mining Machinery or Heavy Earth-moving Equipment. (Essential)
- (4) Fellowship of a professional institution of standing and/or technical publication of high merit. (Desirable)

3. **One Assistant Professor** (for Chemistry) in the Department of Chemistry Fuel and Metallurgy. Post Permanent.

Qualifications :

- (1) A doctoral degree in any branch of Chemistry (Essential, but relaxable to an M Sc degree in case of candidates with special experience in research or teaching)
- (2) Teaching experience at post-graduate level or scientific publications or merit. (Desirable)
- (3) Familiarity with the application of Chemistry in the mineral industry. (Desirable)

4. **Two Assistant Professors** in the Department of Engineering and Mining Machinery Posts temporary but likely to become permanent Specialisation needed in Coal Mining Machinery/Metalliferous Mining Machinery Heavy Earth-moving Equipment.

If suitable candidates for post of Asstt. Professor are not available, one or both of the posts may be filled at Lecturer's level.

Qualifications :

- (1) A degree in Mechanical, Electrical or Mining Engineering or equivalent (Essential)
- (2) Post-graduate degree. (Essential, but relaxable in case of candidates with special experience in design/installation/maintenance/inspection of Mining Machinery or Heavy Earth-moving Equipment)
- (3) Experience of Mining Machinery or Heavy Earth-moving Equipment (Essential)
- (4) Corporate Membership of a professional Institution of standing and/or technical publication of merit (Desirable)

(5) **One Assistant Professor** (for Surveying) in the Department of Mining Let a vacancy for a period of 18 months.

Qualifications:

- (1) A degree in Mining Engineering or equivalent (Essential but relaxable for holders of Master's degree in Civil Engineering with specialisation in Surveying)
- (2) Mine Surveyor's Certificate of Competency granted under the Mines Act (Essential)
- (3) Post-graduate degree. (Essential, but relaxable in case of candidate with special experience in the teaching/practice of Mine Surveying)
- (4) Corporate Membership of a professional Institution of standing and or technical publication of merit (Desirable)

General:

Applicants should have a uniformly good academic record and an interdisciplinary approach and aptitude for developing course material. They shall have secured at least 60% marks in the qualifying (essential qualification) examination this requirement is relaxable for candidates otherwise considered suitable. Applicants should send, along with their applications, a list of their publications (with full publications references) and reprints of some selected papers as also copies of course material already prepared, if any.

Applications in the prescribed form (obtainable from the Registrar, Indian School of Mines, Dhanbad-826004 on receipt of a self addressed envelope of the size 29 cm x 12 cm affixed with postage stamps of the value of Rs. 1.95) should reach the Registrar on or before **March 22, 1976**. Those in service should apply through the employer. If the application through proper channel is likely to be delayed, an advance copy may be submitted but in such a case the original application must also reach the Registrar within 10 days of the aforesaid date.

The School reserves the right to consider cases of 'contact candidates' whose names have been suggested by CSIR/Experts, etc, even though they have not formally applied for the posts.

Applications should be accompanied by a Money Order receipt for a sum of Rs. 8/-(Rs.2/- for Scheduled Caste/Scheduled Tribes candidates) in token of remittance of application fees to the Registrar, Indian School of Mines, Dhanbad-826004. Candidates called for interview will be paid I Class railway fare for to-and-fro journey by the shortest route or the actual expenses incurred, whichever is less.

(M.S. RAMAMURTHY)
REGISTRAR

CLASSIFIED ADVTs.

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY, BOMBAY-400020

Applications (eight copies) are invited on prescribed forms available from the University Office, on payment of Rs. 5/- (by Money Order or in Cash) for the following posts to be filled in the Department of Continuing Education of the University so as to reach the undersigned not later than April 15, 1976.

1. Director of Continuing Education.
2. Assistant Director of Continuing Education (Two posts)

Qualifications:

1. Director

- (i) A first or second class Master's Degree of an Indian University or an equivalent qualification of a foreign University in Adult Education/Social Sciences' Social Work.
- (ii) A Research Degree of the doctorate standard in any of the above subjects.
- (iii) About ten years experience in programme planning, administration and teaching
- (iv) A person with experience in research and work experience in community development projects with emphasis on adult/non-formal education will be preferred.

2. Assistant Director

- (i) A post-graduate degree at least in the Second Class in one of the Social Sciences' Adult Education/ Social Work or an equivalent qualification of a foreign University
- (ii) Experience of teaching, research and or field work of at least 5 years.
- (iii) A person with a doctorate will be preferred

Salary Scales:

1. Director: Rs. 1100-50-1300-EB-60-1600 plus admissible allowances (Total initial emoluments Rs. 1350).
2. Assistant Director: Rs. 400-40-720-EB-40-800-50-950 plus admissible allowances. (Total initial emoluments Rs. 740).

- Note: (a) Work specifications of the above posts will be available with the application forms
- (b) Only selected candidates will be called for interview.
 - (c) Those with proficiency in English and working knowledge of Hindi/Marathi/Gujarati will be preferred.
 - (d) Other things being equal, preference will be given to candidates from scheduled castes/ scheduled tribes/backward class communities.
 - (e) Conditions of service and leave rules will be as laid down under the statutes from time to time.
 - (f) Higher starting salary will be considered in exceptional cases.

(Smt) Kamalini H. Bhanuati
REGISTRAR

UNIVERSITY OF KERALA

Advt. No. AII-3-169/76

Notification

Applications are invited from qualified candidates for appointment to the under-mentioned posts in the University.

Name of Post 1	No. of Posts 2	Area of specification preferred 3
(a) Department of Mathematics Professor Reader	1 1	Applied Mathematics Applied Mathematics
(2) Department of Statistics Professor Reader	1 1	
(3) Department of Physics Professor Reader Lecturer	1 2 1	Applied Electronics One each in Electronics, Material Science Space Physics.
(4) Department of Chemistry Reader	1	Mineral Chemistry
(5) Department of Bio-Chemistry Professor Reader Lecturer	1 1 1	Proteins Proteins
(6) Department of Geology Professor Reader	1 1	Economic Geology Marine Geology Marine Geology Economic Geology
(7) Department of Botany Reader Lecturer	1 1	Plant Physiology
(8) Department of Zoology Professor Reader	1 1	Physiology Environmental Biology Environmental Biology/ Physiology
(9) Department of Aquatic Biology and Fisheries Lecturer	2	One each in Animal Physiology or Fish Physiology Algology
(10) Department of Economics Reader	2	One each in Micro Economics (Quantitative Analysis) Political Economy
(11) Department of Politics Professor Reader	1 1	Political Sociology
(12) Department of Psychology Reader Lecturer	1 1	Industrial and Social Psychology
(13) Department of History Lecturer	2	
(14) Department of Sociology Professor Reader	1 1	Sociology of Development Urban Sociology Urban Sociology Sociology of Development
(15) Department of Malayalam Professor Reader	1 1	
(16) Department of Tamil Professor	1	
(17) Department of Sanskrit Reader	1	Vedanta
(18) Institute of English Reader	1	

- (19) Department of German
Reader 1
- (20) Department of Russian
Reader 1
Lecturer 1
- (21) Department of Linguistics
Reader 1
- (22) Central Workshop and Instrumentation
Laboratory
Instrumentation Engineer 1
Junior Engineer/Scientist
(Electronics) 1

Scales of Pay:

- | | | |
|---------------------------------|---|---------------|
| 1. Professor | — | Rs. 1200-1750 |
| 2. Reader | — | Rs. 850-1450 |
| 3. Instrumentation
Engineer | — | Rs. 850-1450 |
| 4. Lecturer | — | Rs. 600-1250 |
| 5. Junior Engineer
Scientist | — | Rs. 600-1250 |

Appointments to the posts notified will be made strictly in accordance with Section 6 Sub-Section (ii) of Chapter II of the Kerala University Act of 1974, which enjoins that in making appointments by direct recruitment to the posts in any class or category in each Department under the University or to the posts of Non-teaching Staff in the University, the University shall mutatis mutandis observe the provisions in Clause A, B and C of Rule 14 and Rules 15, 16 and 17 of the Kerala State Subordinate Service Rules of 1958, as amended from time to time.

The details of qualifications, experience etc., and application forms can be had from the Deputy Registrar (Administration), University of Kerala, Trivandrum on payment of Rs. 2/- by Crossed Postal Order in favour of the Registrar specifying the post for which application forms are required.

The last date for receipt of applications for all the posts is 15-4-1976.

University Buildings,
Trivandrum,
25-2-1976

A. Sreedhara Menon
REGISTRAR

**SHREEMATI NATHIBAI DAMODAR
THACKERSEY WOMEN'S UNIVER-
SITY, BOMBAY-400010**

Applications are invited on prescribed forms available from the University Office, on payment of Rs. 5 - (by Money Order or in cash) for the post of Principal of the S.N.D.T. College of Education for Women, Poona, so as to reach the undersigned not later than March 27, 1976.

Qualifications:

- A first or second class Master's Degree in Education of an Indian University or an equivalent qualification of a foreign University.
- Either a Research Degree of the doctorate standard in Education or an outstanding competence assessed from the review of the published research, carried out during the five years preceding the date of application, or the published literary or scientific work during the said period.
- About ten years experience of teaching at a University Department or a College of Education, experience of guiding research and organizing extension work.
- Adequate administrative experience.

Salary Scale: Rs. 100-50-1300-60-1600 plus admissible allowances (Total initial emoluments about Rs. 1350/-)

Notes: (a) Only suitable candidates will be called for interview.
(b) Other things being equal,

preference will be given to candidates from scheduled castes/scheduled tribes/backward class communities.

- Salary scales are likely to be revised according to U.G.C. norms.
- Conditions of service and leave rules will be as laid down under the statutes from time to time.
- Proficiency in English and Marathi essential.
- Higher starting salary will be considered in exceptional cases.

(Smt) Kamalini H. Bhambhani
REGISTRAR

**SHREEMATI NATHIBAI DAMODAR
THACKERSEY WOMEN'S
UNIVERSITY, BOMBAY-400020**

Applications are invited on prescribed forms available from the University Office, on payment of Rs. 5 - (by Money Order or in Cash) for the post of Principal and Heads of Departments for the Women's Polytechnic of the S.N.D.T. Women's University to be started at its Juhu Campus from June 1976. The medium of teaching will be English. Applications should reach the undersigned by March 25, 1976.

Qualifications:

A. Principal

- A first or second class Masters' Degree of an Indian University or

an equivalent qualification of a foreign University. A person with specialisation in Education (preferably with Management or Educational Technology), Science, Home Science or Commerce will be preferred.

- Either a research degree of the doctorate standard or an outstanding competence assessed from the review of published research carried out during the five years preceding the date of the application or published literary or scientific work during the said period.
- Minimum 10 years' administrative and teaching experience in an institution of higher education or an institution with applied courses like those in a Polytechnic.

B. Heads of Departments

- Commercial and Secretarial Practice - Specialisation in Commerce will be preferred.
- Costume Design and Dress making - Specialisation in Home Science (Textiles & Clothing) will be preferred.
- Food Technology - Specialisation in Food Technology will be preferred.
- Pharmacy - Specialisation in Pharmacy will be preferred.
- Pathology - Specialisation in Pathology/Biochemistry with experience in Medical Technology will be preferred.
- A first or second class Master's Degree of an Indian University or an equivalent qualification of foreign University in the subject concerned.
- Either a research degree of the doctorate standard or an outstanding competence assessed from the review of published research carried out during the five years preceding the date of the application or the published literary or scientific work during the said period.
- Teaching and/or administrative experience of about 7 years in a type of institution indicated under A(ii).

NOTE:

- As greater stress is on practical and organisational aspects condition No. (ii) under qualifications at posts A and B may be waived in exceptional cases or for persons with long experience of administration and teaching. Candidates with post-graduate diploma instead of a degree in the subject concerned for posts at B may also be considered.
- As the Polytechnic will be organised on semester system, a person with experience of having worked in this type of a system will be preferred.
- Other things being equal preference will be given to candidates from scheduled castes/scheduled tribes/backward class communities.
- Conditions of service and leave rules will be as laid down under the statutes from time to time.

(e) Higher starting salary will be considered in exceptional cases

Salary Scales:

Principal: Rs. 1100-50-1300-EB-60-1600 plus D.A. and admissible allowances.

Head of Department: Rs. 700-40-100-50/2-1250 plus D.A. and admissible allowances.

(Smt) Kamalini H. Bhansali
REGISTRAR

DIBRUGARH UNIVERSITY
Dibrugarh

Advertisement No. 12/76

Applications are invited for the posts of Professor in Mathematics, Life Science, Chemistry, Commerce and Physics (One in each subject) Readers in English (Two posts), Sociology, Political Science, History, Economics (One in each subject) in the scale of pay of Rs. 1100-50-1300-60-1600/- and Rs. 700-50-1250 - (old Scale but likely to be revised) p.m. respectively, plus other allowances as admissible under the rules of the University.

Minimum academic qualifications for the Post of Professor:

- (i) Uniformly good academic record with Doctorate Degree in the subject
- (ii) Continuous research work of merit as evidenced by published papers or articles in standard journals or published works of merit.
- (iii) Ten years' teaching experience at Post-graduate level or eight years' teaching experience at honours level plus five years' teaching experience at Post-graduate level
- (iv) Experience of guiding research students for Ph.D. Degree

Specialisation for the Post of Professor in Mathematics - Pure Mathematics.

Specialisation for the Post of Professor in Chemistry - Organic Inorganic Physical

Specialisation for the Post of Professor in Life Science - Botany/Zoology Biology/Life Sciences at M.Sc level and Ecology Physiology Biochemistry Genetics/Embryology at Ph.D level

Specialisation for the Post of Professor in Commerce - Business Industrial Administrative/Management

In exceptional cases, the requirements under sub-clauses (iii) and (iv) may be relaxed by the competent authority.

Minimum academic qualifications for the Posts of Reader:

- (i) Uniformly good academic record with a Doctorate Degree or equivalent published work or equivalent research work in the subject.
- (ii) Research papers or articles of merit published in standard Journals
- (iii) Five years' teaching experience at Post-graduate level or eight year's teaching experience at Honours level, preferably with experience of guiding research students preparing for Ph.D. Degree.

Specialisation for the Post of Readers in English:

Reader No. 1.

- (i) Ability to offer courses in Medieval English Literature/Elizabethan period/Eighteenth Century literature.
- (ii) American Literature (Poetry) to supplement nineteenth century studies in English poetry.

Reader No. 2

- (i) A first class or high second class degree in English literature is a basic requirement for this post.
- (ii) Specialisation: High qualification in ELT preferably with ability to conduct training programme in Phonetics, Remedial Grammar and Method of English teaching

Specialisation for the Post of Reader in Pol. Science. Specialisation in the Government and Politics of South Asia or Specialisation in Political Theory or Public Administration.

Desirable: Knowledge of Nepalese or Bhutanese language (for Govt. and Politics of South Asia).

Specialisation for the Post of Reader in Sociology - Urban/Industrial Sociology or Social Demography or Criminology and Penology.

Specialisation for the Post of Reader in Economics: **Desirable:** Specialisation in (a) Demographic analysis and population research or (b) Mathematical Economics and econometrics or (c) co-operation and rural economics.

In exceptional cases, the requirements under sub-clause (iii) may be relaxed by the competent authority.

Six copies of applications stating: (1) Name in full (Block letters), (2) Fathers' name, (3) Home address with Police Station (4) Present address with T.O., (5) Age on 1.1.76, (6) Present occupation and pay (7) Are you a citizen of India? (a) If so, how? (b) Is was your father a citizen of India? (8) Detailed academic career from Matric onwards with years of passing and division class secured along with attested copies of certificates and testimonials accompanied by an Indian Postal Order for Rs. 5/- only should reach the undersigned not later than 31.3.76. Reprints of research papers or articles or published works should be attached along with the applications. A certificate about good character from the head of the Institution last attended or served must accompany the application for the post if he is not in service of this University.

Applicants already in service should apply through proper channel but they may submit advance copy of the applications. Candidates called for interview for the post will be given T.A. according to the rules of the University.

D. H. Goswami
REGISTRAR

UNIVERSITY OF SAUGAR
Advertisement No. R.1/76

Applications on a prescribed form - obtainable from the office of the Registrar on requisition accompanied by a self-addressed stamped envelope and a Postal order of Rs. 5/- as application fee -

are invited for the following teaching posts so as to reach the Registrar, University of Saugar before 30th March, 1976.

2. Candidates already in service should send their applications through the proper channel. An advance copy, however, may be sent direct. The application should carry a testimonial with regard to the work and conduct of the candidate from the Head of the Institution he is serving or has last served.

3. Candidates selected for an interview will have to come to Saugar at their own expense and bring with them their original research papers, degree etc.

4. The period of probation shall be two years from the date of substantive appointment to permanent posts. This period of probation may, however, be extended by such further period as the Executive Council may deem fit, but the total period of probation shall in no case exceed three years. Service during the temporary appointment, including the probationary period, may be terminated without notice and without assigning any reason.

5. The age of retirement is sixty years.

6. The University reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied.

7. The candidates must particularise in every case the branch of their specialisation and must show their qualifications from Matriculation upwards in detail indicating in each case the marks divisions class grade obtained with rank, if any, and the subjects taken.

8 Salary Scales:

Professors: Rs. 1100-50-1300-60-1600

Readers: Rs. 700-50-1250

Assistant Professors: Rs. 400-50-800-50-950

(With D.A. and P.F. benefits according to University rules.)

These salary-scales are likely to be revised, in which case the qualifications as prescribed for revised scales will be applicable

9. Qualifications:

(i) **Professor:** A. (a) A first or second class Master's Degree of an Indian University or an equivalent qualification of a Foreign University in the subject concerned

(b) Either a degree of the Doctorate standard or published work of high standard

(c) Specialisation in the relevant branch of the subject concerned, when specialisation is necessary

(d) Not less than 10 years experience of post-graduate teaching and experience of successfully guiding research.

B. Knowledge of Hindi will be desirable

(ii) **Reader:** (a), (b) and (c) Same as for Professor with Post-graduate teaching experience of five years and three years experience of guiding research. Working knowledge of Hindi shall be a desirable qualification.

(Contd. on page 18)

UNIVERSITY OF DELHI
No. Estab. IV/30/76

Applications on the prescribed form are invited for the following posts:

Sr.No	Department	Designation	Areas of Specialization
1. Zoology		i One Professor ii One Reader iii Two Research Associates (for C.A.S.)	Entomology Cytology and Cytogenetics Ecology
2. Botany		Two Lecturers (Temp upto Dec 1976)	
3. Anthropology		One Professor	Cultural & Social Anthropology
4. Commerce		i One Professor ii One Reader	Industrial Economics with Special reference to pricing and costing International Finance & Liquidity
5. Psychology		One Reader	Social Experimental Psychology or Experimental Psychology
6. Sanskrit		i One Professor ii One Reader	
7. Arabic & Persian		i One Reader in Arabic ii One Reader in Persian	Modern Arabic
8. Library Science		One Reader	
9. Economics		i One Professor ii Three Professors (One for C.A.S.) iii Two Lecturers iv Three Research Associates (for C.A.S.)	Monetary Economics One in Public Economics
10. Sociology		One Lecturer	
11. Faculty of Law (For Campus Law Centre)		One Professor	Constitutional Law
12. History		i One Professor ii One Reader	Modern Indian History (Preferably in the areas of Social & Economic History) Archaeology
13. Hindi		i One Reader ii One Lecturer	Drama and Stage Craft
14. Urdu		i Two Readers ii One Lecturer	
15. Buddhist Studies		i One Reader ii One Lecturer iii One Lecturer iv One Lecturer (Temporary)	Pali Tibeto-Sanskrit
16. Human Geography		One Reader	Physical Geography
17. Chemistry		i One Professor ii One Professor iii Reader iv One Research Associate (For C.A.S.)	Physical Chemistry Inorganic Chemistry with specialization in Organometallics Inorganic Chemistry.
18. Computer Science		One Professor	Computer Science
19. English		i One Reader ii Two Readers	For Post-M.A. Course in the teaching of English as Second Language.
20. Geology		i One Reader ii Two Readers	Mining Geology, Mineral Economics, Geostatistics, Geodata processing.
21. Physics & Astrophysics		One technician (Temp. upto 6.7.76)	

Note: The posts at Serial Numbers 1 (i & ii), 3, 4, 5, 6, 7(i), 8, 9(i), 12, 13(i), 14 (one Reader only), 15(ii), 16, 17 (i, ii & iii), 18, 19 (two Readers) and 20 (i) have been sanctioned for the duration of 5th Five-Year-Plan.

The scales of pay of the posts are:

- 1 Professor: Rs. 1500-60-1800-100-2000-125/2-2500.
- 2 Reader: Rs. 1200-50-1300-60-1900
- 3 Lecturer: Rs. 700-40-1100-50-1600.
- 4 Research Associate: Rs. 700-40-900-EB-10-1100-50-1300
5. Technician: Rs. 550-25-750-EB-30-900

All posts carry D.A., C.C.A., and H.R.A. as admissible under the rules in force in the University from time to time

1 Essential Qualifications for:

1 Professorships:
A Scholar of eminence
Independent published work of high standard and experience of teaching Post-graduate classes and guiding research for a considerable period desirable

2 Readerships:

Good academic record with first or high second class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work Independent published work (in addition to the published work mentioned above) with atleast 5 years' teaching experience in Honours Post-graduate classes essential

3 Lectureships:

Essential: Consistently good academic record with a first or high second class B Master's Degree or an equivalent degree of a foreign University in the subject concerned

Desirable (in order of preference):

i A Doctor's Degree or Evidence of research work of equivalent standard in the subject concerned

ii Teaching experience of Degree Post-Graduate Classes

Provided that if a teacher is not a Ph.D. at the time of his/her appointment and does not qualify himself/herself for the award of a Ph.D. Degree from a recognised University in the subject which is being taught by him/her within the period of five years from the date of his/her appointment or does not give evidence of research work of equal standard within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of five years till such time he/she fulfils the above mentioned requirements.

4. Research Associate:

Good academic record with a first or high Second Class Master's Degree or an equivalent degree of a foreign University in the subjects concerned.

Note: Initial appointment will be for a tenure period of three years extendable by another two years only; in no case the tenure will extend beyond 5 years in all.

5. Technicals:

- i. Diploma in Mechanical Engineering with five years' experience.
- ii. Must be capable of working on Lathes, Milling Machines, Surface grinders, shapers and knowledge and experience in running, maintenance and fitting of compressors of various applications, etc.

II Special Desirable Qualifications:

1. **Research Associate in Zoology:**
Research experience in any of the following areas: Cell Biology; Endocrinology; Entomology; Fishery Biology.
2. **For one post of Lecturer in Botany (Temp.)**
Specialization preferably in Plant Ecology Environmental Biology
3. **For Professorship in Anthropology:**
Intensive experience of field work and research in Tribal Cultures Knowledge of Pre-historic Cultures and Primitive Technology
4. **For Professorship in Commerce:**
Substantial doctoral and post-doctoral work in the areas of specialization
5. **For Readership in Commerce:**
Candidates with both Economics and Commerce post-graduate qualifications can apply
6. **For Readership in Library Science:**
Experience in a responsible professional capacity in addition to five years' teaching experience
7. **For three Professorships in Economics:**
i. **Public Economics:**
Specialization in the theoretical as well as the empirical problems in the Economics of public policies and of public undertakings
ii. **Mathematical Economics:**
Good knowledge of Mathematics specialization in Economic Theory
iii. **Professorship in Economics (Centre of Advanced Studies):**
Expertise in the Mathematical and Statistical tools of Economic analysis particularly in econometric methods and in Mathematical Programming
8. **For Professorship in Economics (with specialization in Monetary Economics):**
Specialization in Monetary Theory and Monetary Policy with acquaintance of analytical & quantitative tools in Economic Analysis
9. **For Readership in Hindi:**
Independent published work on the field of Hindi Drama and stage-craft and sound knowledge of Sanskrit and Hindi dramaturgy
10. **For Lectureship in Hindi:**
Minimum of 5 years' teaching experience of Post-Graduate Honours Classes in Hindi. Independent published work
11. **For first Readership in Urdu (Plan):**
i. Editing texts with emphasis on transmission, emendation and restoration.
ii. Textual Criticism with a strong background of classical literatures and languages.
iii. Detecting faked manuscripts and documents.
12. **For second Readership in Urdu:**
Specialization in Urdu poetry produced between 1857 and 1914 with

knowledge of Poetics, Prosody and Conventions of 19th century diction and poetic styles.

13. **For Lectureship in Urdu:**
Intimate knowledge of 20th Century Urdu literature.
 14. **For Readership in Buddhist Studies:**
(a) Ability to teach Mahayana Buddhist Philosophy in M Litt Classes and guide research works on Nagarjuna and Vasubandhu etc. (Candidate who has already done some research work on Nagarjuna and or Vasubandhu preferred.)
(b) Good academic record in Sanskrit and Pali
 15. **For Lectureship in Pali:**
Ability to teach Pali through the medium of English, Hindi & Pali
 16. **For Lectureship in Tibeto-Sanskrit:**
Sufficient knowledge in Sanskrit or Pali and teaching experience either in Sanskrit Pali or Tibetan. Should also be able to teach the subject in English and Hindi
 17. **For Readership in Human Geography:**
Specialization in any one of the following fields: Geomorphology, Climatology or Biogeography
 18. **For Professorship in Computer Science:**
Doctor's Degree in Computer Science Electrical Engineering Physics Electronics Communication Engineering Mathematics Mathematical Statistics. At least 5 years' experience of working in a Computer system as well as on the development of Computer Science techniques having relevance to Natural or Social Sciences.
 19. **For Professorship in Physical Chemistry:**
Specialization in any of the following areas of work in Physical Chemistry: i. Photochemistry, ii. Polymer Chemistry, iii. Solid State Chemistry, iv. Quantum Chemistry, v. Electrochemistry, vi. Chemical Spectroscopy, vii. Chemical Kinetics, viii. Statistical Mechanics, ix. Thermodynamics
 20. **For Readership in English:**
Ph.D. in the teaching of English as a Second Foreign language, or in a related field
- OR
- Ph.D. in English literature with an advanced diploma or degree in the teaching of English as a foreign language
21. **For two Readerships in Geology:**
Specialization in one or more of the following areas: Geochemistry, Geophysical prospecting including groundwater in hard and soft rocks, Engineering Geology, Micro-palaeontology, Structural Geology, Geomorphology and Mineral Fuels
 22. **For Technician in Physics & Astrophysics:**
Knowledge and experience of Refrigeration Machinery, running and maintenance of liquifiers, etc.

The prescribed application form can be had from the Information Office of the University either personally or by sending a self addressed envelope (5" x 11") with postage stamps worth Rs. 2.25.

Selected candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Application (separate for each post) accompanied by attested copies of Degrees, other certificates, published research articles, etc. should reach the undersigned not later than 31st March, 1976.

NOTE:

1. It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation in any of the qualifications may be made in exceptional cases in respect of all posts on the recommendations of the Selection Committee.
2. Canvassing in any form by or on behalf of the candidates will disqualify
3. Candidates from outside Delhi for the teaching posts called for interview will be paid contribution towards travel expenses equivalent to 1½ single Second Class Rail Fare.
4. Those who had applied in response to the earlier advertisement for the post of Reader in Geology with any of the areas of specialization mentioned above need not apply again, but in case they have any additional information to supply they may do so

1st March 1976

REGISTRAR

Delhi University Delhi-7

SAURASHTRA UNIVERSITY

Applications in the prescribed forms are invited for the post of **Reader in Bio-Sciences**; Pay Scale Rs. 700-50-1250.

The post is permanent and carries benefits of contributory Provident Fund as per University rules. Dearness allowance and House Rent allowance will be paid as per University rules. Higher initial salary in the scale may be considered in case of exceptionally qualified and experienced persons. Qualifications and experience relaxable in special cases. Candidates in employment must submit their application through their present employer. Candidates if not knowing Gujarati will be required to pick up Gujarati within a reasonable period. Age ordinarily not exceeding 55 years.

Application forms will be available from the Registrar, Saurashtra University, University Campus, Kalavad Road, Rajkot, on sending a self addressed envelope of the size 23x11 cms. with postage stamps worth Rs. 1.15 paise.

Application (seven copies) accompanied by Indian Postal Order for Rs. 5/- Crossed in favour of Registrar, Saurashtra University, University Campus, Kalavad Road, Rajkot, Should reach this office on or before 15-3-1976.

V.M. Desai
REGISTRAR

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bal Krishan. Some unsteady problems in thermal boundary layer. University of Delhi
2. Bathaiah, D. Hydrodynamics: Magnetohydrodynamic rotating and stratified flows. Sri Venkateswara University
3. Chaudhuri, Pranay Kumar. Studies on the effects of nonhomogeneity in elastic properties on stresses. University of Calcutta.
4. Ghosh, Mohanlal. On propagation of waves in elastic solid and liquid media. D.Sc. University of Calcutta
5. Jain, Jaijn Pershad. Stochastic models and optimum plans in animal breeding. University of Delhi.
6. Joshi, Bharat Kumar. Study of certain boundary value problems and integral equations. Ravishankar University.
7. Lahiri, Benoy Kumar. On certain investigations in theory of functions infinite series and measure of a set. D.Sc. University of Calcutta.
8. Mudali, Jugal Charan. Some problems in the theory of magnetohydrodynamics. Utkal University
9. Radhakrishna, A. On lattice ordered near rings and non-associative rings. I.I.T., Kanpur
10. Radhakrishnan, M.S. On a class of Kotha function spaces which are perfect Fréchet spaces. B.I.T.S., Pilani.
11. Sahoo, Dola Gobinda. A few problems in the theory of magnetohydrodynamics. Utkal University
12. Venkateswara Reddy, Yenumula. Near rings with chain conditions. Andhra University

Physics

1. Anand, Prabhat Kiran. Galvanomagnetic effects in zinc. University of Delhi
2. Ashraf Unnisa. Studies in electronic spectra of some monohalides of strontium and indium. Andhra University
3. Bawa, Sukhwant Singh. Studies of the surface layer effect in ferroelectrics and microwave dielectric dispersion in TGS. University of Delhi.
4. Bichule, Govind Kishanrao. Studies in lattice dynamic properties of solids. Marathwada University
5. Chatterjee, Sanat Kumar. Studies on lattice imperfection in deformed metals and alloys by X-ray diffraction. University of Calcutta
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University News

Vocationalization of Education The Importance of Being a Coach

A CHRONICLE OF HIGHER EDUCATION & RESEARCH APRIL 1976 Re. 1.25

**Management
of Committees**

**Multi-faculty
structuring of
technological
university**

**Strength &
weaknesses of
Higher Education**



Dr. B. D. Jatti, Vice-President of India, being awarded the degree of Doctor of Laws (Honoris Causa) by the Chancellor of Guru Nanak Dev University at the Fifth Annual Convocation.

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	Reader	1	Biochemistry
3. Anthropology	Reader	1	Physical Anthropology
			Biological Anthropology
4. Hindi	Professor	1	Open
	Reader	1	Open
5. Modern Indian Languages			
Tamil	Lecturer	1	Open
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7. Education	Professor	1	Educational Psychology
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8. History	Reader	2	One in Economic History and the other in World History with Specialisation in Social and Economic Development
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The number of this advertisement and name of the post applied for must be referred to in the application. Persons in employment should apply through proper channel or with a no objection certificate from the present employer.

Candidates will be required to appear at an interview if and when called for.

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Editor: ANJNI KUMAR

Vocationalization of Education

P. J. Madan

Vocationalization at the school stage is academically sound and that it can be further extended to the level of university education. It would be a fruitful exercise to ponder over the possibilities of giving it a practical shape and thereby making the higher education an intellectual pursuit related to productivity and needs of the people.

The relevance of making the school education vocational oriented has been discussed to such an extent that there seems to be no alternative to it. But the force of the same arguments can also be applied in favour of the University education. In higher education, after all, the process of learning is one in which a definable subject is studied to such a depth that it is possible to develop from it general principles that will then be applicable in a situation unforeseen. The test of vocational education is that it can achieve this result. It must be able to take a practical task and teach it to such a depth and intensity that it becomes in itself the key to general education. Inevitably such a course is centred upon practical work and the kind of knowledge that is gained not only through thought and memory but also through hands. It involves an education of both mind and body. For such a course the universities will have to give a fresh look to its traditional mainstream of curricular programme.

Besides the above rationalization for higher education the universities can also not remain passive spectators to the happenings at the school stage. There has been much thinking on the issue of work experience and vocationalization in the school curriculum since the publication of the Report of the Education Commission (1964-66). Accordingly many states have now taken a decision to implement the 10+2+3 scheme from 1976.

At this stage, it is necessary to have a peep into the early efforts in this area.

Attempts to give vocational orientation to school education were made in the early fifties through (i) the establishment of multipurpose schools and special vocational schools in agriculture and commerce, (ii) the introduction of vocational biased subjects in school curriculum and (iii) the establishment of Junior Technical Schools. These efforts ran into rough waters because of certain unforeseen psycho-sociological reasons. Both teachers and administrators looked down upon the vocational stream as something inferior to the academic stream meant for students of lower ability. This resulted in psychological barriers being built up amongst students against vocational and technical courses.

(Contd. on Page 9)

The author is Vice-Chancellor, M.S. University of Baroda

The Importance of Being a Coach

Ranjit Bhatia

A major outcome of government patronage to Indian sports in India is the tremendous air of respectability that has now been lent to the profession of sports coaching. Thanks to the various pay-body recommendations, an able bodied young coach can earn a goodish salary, and be in a position to do justice as a qualified person to train beginners and the experienced ones, in the technicalities of the game concerned. Most schools, colleges and clubs have realised the importance of proper coaching and there is a real demand for these coaches from the National Institute of Sports.

The trouble really starts when the newly trained coach finds himself face to face with the physical educationist, who in the traditional pattern of management has been at the helm of affairs in institutions where sports are formally organised. The latter, who in most cases has been a university graduate, and believes very strongly in the supreme authority of the master of physical education over the 'trainers', is unable to accept the coach's role, as a specialist. He is only partly to be blamed for his predicament, which may be attributed to the kind of courses that physical education colleges in most of our universities have to offer. There are some excellent colleges for preparing physical education teachers in the country. Some of these are quite selective in their admissions. There are national institutes like the Lakshmibai College at Gwalior which attracts able and young school leavers from all parts of the country for its three year degree course. The curriculum at Gwalior had been prepared by some of the most distinguished physical education men in India and gives a good grounding not only in the basic ideas underlying physical activity but also in the allied sciences. It is, however, the kind of course that prepares one to be an administrator of a youth centre or a school teacher. The physical education graduate at Gwalior, while he gets the opportunity to specialise in the sport of his interest, does not really have the training to coach teams or to organise regular training as an expert in a particular game.

Consider for instance the case of national decathlon champion, Vijay Singh Chauhan who has been the pride of the Lakshmibai College. He is a distinguished athlete, and a physical educationist, but he is not an athletic coach and very rightly he is today a Deputy Director in the UP Council of Sports, where in his new position he can do much to popularise, not only can his own sport but all outdoor games. The coach, whatever his academic qualifications, is a very different

being. He is not an administrator, and nor is he a sports official of any other kind. His has to be a one track mind interested in his particular sport. All his knowledge has to be related to the methodology of training. He has to be the trainee's friend, guide, and philosopher. He has to be some one who is more interested in other people than in himself, a vital factor that more often than not, should rule out most champions from the profession. In most parts of the world today where the coach's role is recognised in sports, his worth is judged, not by his qualification, academic or otherwise, but by the kind of trainees he produces. Arthur Lydiard is, for instance, the world's leading coach for distance running because his ideas have gained world wide acceptance and he is producing hundreds of talented athletes each year, some of whom have become world champions.

It is now nearly twenty years since the profession of sports coaching gained official status through the Rajkumari Sports Coaching Scheme. In the early years of recruitment the method of giving priority to ex-champions proved to be a good thing for they were really to be the messengers of sport. Through them, and not necessarily through their coaching efforts, sports did progressively gain popularity in every region, to the extent that, now we have thousands of youngsters who are keen to play games. The coach's role and his responsibilities are becoming greater, and call for very selective recruitment at the NIS in the future years. It is not enough to be a champion. Aptitude to coaching would have to be assessed, goodness knows how? In this connection it is very important that the active sportsman, if he is interested in becoming a coach, should wait for his best years to be over before he embarks on a plan to teach his trainees the same mistake that he has been making! As in all other professions one learns much from experience and the older and wiser coach is bound to attract more trainees.

Mohammed Ilyas Nawaz Babar is fifty. He was an average performer in the high jump during his university days at Osmania. When he qualified as an athletics coach from the NIS in 1961 he had already been coaching in association with the late Dr Otto Peltzer in Hyderabad. In the next fourteen years he has produced amongst others, no less than twenty national champions, a number no other coach in India can boast of. There have been times when he has had to be without a job and he virtually starved himself to be with his trainees, young and old, and see that they went through their training schedules regularly. "We athletes in India tend to shy away from competitions and my training consists of preparing the athlete physically and psychologically to face competitions at any time. After all that is the real charm of this sport." Ilyas Babar has all the times in the world for his trainees. And why not, considering that our most promising and outstanding runners regard him as their best friend.

[Courtesy NIS Journal]

MANAGEMENT OF COMMITTEES

R.P. Puri

Universities are finding it rather difficult to entrust the decision making powers to statutory officers individually. This is because of the considerable increase in their teaching and research activities coupled with the critical physical and financial constraints within which they function and seek solutions to the numerous day-to-day complex academic problems. Consequently, as a corollary to the participative system of management, our universities have started depending heavily on committees. They are now increasingly being assigned more work than was the practice hitherto. Another reason for growing reliance on committees is the popularly held view that the decisions arrived at a committee meeting as a result of wide-ranging discussions not only bear the seal of joint responsibility, but are also considered to be clothed with greater authority.

Also there is no gainsaying the fact that committee government does prevent us from making hasty decisions because this system envisages looking into problems more deeply as well as re-examining the assumptions and prejudices of the management. The mistakes that individuals may make can be rectified more quickly than it may be otherwise possible because of the intermixture of ideas and views among more than one person. At committee meetings persons with different orientation have opportunities of consulting with one another. They are thus afforded time even to challenge the views held by others.

However, for the committee system to be successful it ought to function according to certain practices and procedures. And this is what we are going to discuss below. It is the authorities of the universities i.e., the Academic Council, the Executive Council etc., which have been kept in view in the course of this discussion.

Schedule of Meetings

For the sake of convenience of committee members, internal as well as external, a time-table for meetings should be announced in advance. The frequency of meetings depends upon the quantum of business to be transacted by the committees. For example, if the agenda is so heavy that it necessitates a meeting every month, a 12-meeting calendar could be announced in the beginning of the year. Whatever may be the frequency of meetings, it is expedient from the point of view of a smooth operation of the system that the schedule is issued at the commencement of each

semester/term. Such a practice will enable the participants of the meetings to avoid possible clash in their commitments in and outside the university. For the successful working of this arrangement, frequent changes in the announced schedule should be avoided.

In any case, before fixing a fresh date, the chairman, and, as far as possible, all members of the committee (if their number is not large) ought to be consulted so that the possibility of the meetings being postponed for want of quorum is eliminated. The person in-charge of the committee room (if he is working in a section other than the one dealing with the council work), should also invariably be kept informed of these changes.

Even if the calendar of meetings is circulated in advance, the secretary of the committee must issue a meeting notice in terms of the relevant regulations in good time before every meeting.

Mailing of agenda papers

The members generally complain about the delay in receiving the agenda papers. It is hardly necessary to stress the fact that members should receive the papers sufficiently in advance of the date fixed for the meeting so that they are able to study the papers properly before they enter the committee room. The timely receipt of papers, besides enabling them to form their views, both for and against the proposals to be considered by the committee, will also help them to fully understand their implications. If, on the other hand, they have to go through the papers at the meeting itself, then matters of import may not receive the attention they deserve. In fact (whether or not it is provided in the Regulations relating to the conduct of committee meetings) no items which needs careful consideration by the committee should be placed on the table. In this category should be included such matters as rules, ordinances, service conditions of the staff and financial estimates.

Proposals to be self-contained

The notes on the agenda should contain all the relevant facts and figures and the necessary background information. To enable the members to take expeditious and reasonable decisions, they need be briefed about (i) the implications of the proposals, (both from the financial and administrative points of view), (ii) the rules applicable to them, (iii) the earlier decisions taken by the committee on similar matters and (iv) any other guidelines which the UGC or the

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State Government might have laid down in relation to the items under consideration.

Lengthy agenda papers are not always welcome. Nevertheless, it is better to present to the members as much information as possible rather than furnish them with incomplete details so as not to let them say that in the absence of fuller information they were not able to arrive at proper decisions. Inadequate notes may as well result in postponing the consideration of items and over accumulation of work. Hence adequate information in as concise a manner as possible should always be made available to the members of the committee. The purpose of the committee system is to transmit as much information and as correctly as possible to those who are to take part in its deliberations so that no available fact remains unconsidered.

Besides rendering a good service to the committee members, comprehensive notes also prove useful for future reference. Thus the labour put in preparing proposals in detail for the committee will not go unrewarded. On the other hand, scanty notes slow down the tempo of the decision-making processes.

Forwarding of proposals

Proposals for the consideration of the committee should continue to pour into the council section as and when they get ready, instead of being specially invited or rushed through before every meeting. Indeed the proposal system of announcing a calendar of meetings in advance should facilitate the automatic and continuous flow of agenda items to the section. But where there is no such system, it becomes necessary, while notifying the date for the committee meeting, to ask the sections concerned to forward proposals by a certain date. Regulations relating to the conduct of meetings provide for a schedule for issuing meeting notice, for mailing the agenda papers etc. Keeping this schedule in view, dates should also be fixed for receiving agenda items and the relevant notes (including supplementary agenda) from various sections.

Filling up of vacancies

With so many committees in operation in our University system, both statutory as well as those created by executive orders or by the university authorities themselves, it is essential that the position regarding the filling up of vacancies is reviewed periodically, preferably every month. Thus the possibility of any vacancy remaining vacant for an unduly long time will be greatly reduced. The importance of such an exercise cannot be over-emphasized. If the vacancies in the membership of the committee are not filled up promptly, it may raise serious questions in relation to its composition and sometimes the legality, of the proceedings. It may, therefore, be advisable to maintain information in this regard in a register carrying such columns as: (a) Statute No.; (b) Text of Statute; (c) Tenure of membership; (d) How the vacancy has arisen; (e) No. and date of meeting of the committee at which election/nomination was made; (f) Whether nominated for the residual period or for full term; (g) Nominated by whom and when; and (h) Date of expiry of the term.

Classification of agenda and format for minutes

It is useful to adopt some suitable uniform format for preparing agenda papers. Notes can be submitted duly pre-punched to facilitate their filing. In order to identify various sections (Administration, Academic, Finance etc.) from which items emanate, papers of different colours may be used. Such an arrangement is, however, beset with practical difficulties, such as the availability of papers of the specific colour and in the desired quantity at the appointed time. In these circumstances, the system of paginating agenda papers in consecutive numbers (section-wise) may perhaps be the best way by which items can be located quickly.

The question of presenting agenda under certain classified headings also needs to be considered. The papers placed, for example, before the Executive Council broadly deal with matters relating to Finance, Academic, Administration etc. While in some universities, the work relating to faculty recruitment has been assigned to the Academic Branch, in others it is entrusted to the Administration. Thus, each section could be allotted some sign, may be A, B, C; 'A' for Administration, 'B' for Academic, 'C' for Finance and so on. Thus, the items relating to these sections will carry the respective alphabet. The note concerning the confirmation of faculty members, may perhaps carry this heading.

Item No. /EC/1-3-1976(B)

"To consider the confirmation of certain faculty members."

Similarly, an item submitted by the Finance Branch could appear thus.

Item No. /EC/1-3-1976(C)

"To consider the investment of amount out of the Provident Fund balances of the staff members."

Difficulty might arise in following this procedure when supplementary agenda consisting of items relating to each of the aforesaid sections is circulated. The supplementary agenda notes will thus have to be paginated not consecutively but in continuation of the page number which appears at the end of the papers concerning each section. Thus, the pages of the notes relating to Administration will be in consecutive numbers, with 'A' put within brackets, and similarly 'B' for notes relating to the Academic Branch.

The advantage of classifying the agenda according to the sections wherefrom they emerge is that the heads of these sections can be present at the meetings for clarifying any points which might come up during the course of discussion or for furnishing some additional information. Also, immediately after the discussion, they can go back to their seats and prepare draft minutes. This practice, however, does not prevail in all universities alike and certainly not in respect of the Executive Council meetings. But the department-wise presentation of papers perhaps has such other advantages, as tracing reference to items relating to a particular department because resolutions concerning it would appear at one place.

The agenda for the Academic Council meeting and for the meetings of faculty/board of studies, can be classified under such headings as postgraduate matters under-graduate matters, research activities, evaluation of scholars, syllabus etc.

The items which need to be reported to the committee for information could be grouped together. Similarly, certain other matters relating, for example, to the Executive Council meeting on which the Vice-Chancellor has taken action because of their urgent nature in terms of the relevant statutes/ordinances could also be combined.

Full attachments to the notes should be circulated only when it is unavoidable, otherwise the contents should be summarised in the note itself. The recommendations of sub-committees, should preferably carry a short summary sheet, highlighting the background to the appointment of the committee, its recommendations, the practicability of their implementation, etc. Likewise, as stated earlier, each note should carry a brief introduction/background to the proposal, followed with its administrative and financial implications.

The recording of specific minutes should be preferred to the discursive minutes (unless specifically requested by a member that the proceedings should carry his view point) because this will save considerable time of the members as also any attributions made by them in confidence. Such minutes will also be available for wide circulation and display, if necessary. Also, the writing of discursive minutes would need expert handling so that these are free from ambiguity. While on the other hand, the recording of specific resolutions may not be exposed to legal niceties.

Draft minutes to be submitted to the chairman for approval, should be accompanied with annexures/appendices so that the changes suggested at the meeting in the attachments (which in many cases contain ordinances/rules) could also be corrected. Moreover, if any points had been omitted by the secretary while preparing the minutes, the same would also be corrected by the chairman.

The minutes should be treated confidential till these are approved by the chairman and become ready for circulation among its members and others who are responsible for their implementation.

Introspection

Additional information may be sought at the meeting itself despite the self-contained notes. The committee secretary has, therefore, to be fully prepared before going to the meeting, taking with him the relevant files, rules and regulations relating to agenda items. He should ask himself such questions as: was it necessary to place this proposal before the committee (to be asked at the time of including the item in the agenda); whether or not the committee should accept it; what are the implications in accepting the proposals; whether, when accepted, it would be in conformity with the provisions contained in the statutes/ordinances/rules formulated by the university. Such introspec-

tion is likely to bring forth some additional relevant points which may need clarification. He must also discuss the agenda papers with the chairman of the committee at least two days before the meeting. This discussion is important indeed, for it would enable the chairman to be briefed fully on matters being placed before the committee. Additionally, this will help the committee members in arriving at conclusions expeditiously.

The secretary will, of course, carry with him to the committee room copies of the Act and Statutes, university Hand-book containing ordinances, rules and regulations, calendar of meetings, table diary etc.

Follow-up action on minutes:

Some stencils containing draft Ordinances, rules, etc., cut at the time when the notes for the agenda are prepared, can be used later. All such stencils should be preserved carefully till the finalization of the minutes. These stencils should be taken from the Gestetner Operator and kept with the Council section so that no time is wasted in searching the desired stencils at the appropriate time.

For proper maintenance of records, copies of the notes as well as resolutions should be put in the relevant files so that references to the agenda papers from time to time is avoided. Similarly, copies of the resolutions should be forwarded to the sections concerned to enable them to take appropriate action thereon. As soon as the minutes have been approved, spare copies of the ordinances, rules, regulations, etc. forming part of the minutes should be taken out for circulation. Copies of Agenda notes and of the Minutes should also be supplied to the Visitor/Chancellor through proper channel.

If there are certain decisions which should be communicated to faculty offices, these should be circulated in one circular.

The first item of the agenda is confirmation of the minutes of the previous meeting. The second one *ought* to be a report on action taken on minutes. This item can be prepared by the council section itself if it is aware of the action taken by the various sections on the resolutions of the previous meeting. Otherwise information should be obtained and compiled. It is suggested that master file containing copies of "Reports on Action Taken" should be opened and reviewed from time to time, particularly those resolutions against which it is recorded "action is being taken." This will ensure that suitable follow-up action has been initiated.

A number of points which emerge out of discussions do not normally form part of its proceedings. In order to benefit fully from such discussions it would be a good practice to keep a record of all such points separately. The secretary himself should take action on these points or alternatively he should transmit them to the sections concerned for appropriate disposal. But if the suggestions made are of far reaching importance, and when implemented are likely to affect

could even be recorded as resolutions.

Reliability of information and the decision-making Process

New tools of prediction and control such as statistical analysis are now available for use. Thus high quality information is a pre-requisite for arriving at sound solutions. The quality of information made available to the committee members depends partly on the efficient information system and partly on the initiative of the organisers of the meeting. The organisers should anticipate the kind of information that might be asked for at the meeting as also the source from where to get it. In fact, the secretary of the committee should try to identify information needs, and also ensure that (i) the information being supplied to the committee is intelligible so that it is handy to use, (ii) its accuracy and relevance has been checked, and (iii) its reliability has been rechecked.

For seeking rational solutions to the proposed problem, it is perhaps desirable that as a first step, we should carefully examine the question to be decided, think of all the alternatives leading to the solution of the problem, make an evaluation of the proposed alternatives and finally take a decision, forecasting its outcome. It is desirable to deal with each aspect of the problem leading to its solution more carefully and thoroughly. In fact these stages involve a quite different kind of intellectual exercise: (a) to analyse the problem, (b) to adopt a critical attitude in following alternatives which may come to the mind of the committee members, and (c) finally to make a judgement. Another more specific way of looking at the problem and seeking its solution is perhaps to think, what is the problem? What are the alternatives? And finally which is the more feasible alternative for implementation?

Checklist

While stencils are being cut, several omissions in notes may come to notice such as the insertion of number and date of a communication, mentioning of certain figures, enclosing annexures to the notes and so on. In order that these gaps are filled up, all such points should be noted down in a separate sheet of paper and the relevant pages on which deficiencies were noticed are rechecked before the agenda papers are finally mailed. Also, before the sets of the papers are stapled or stitched together it may be desirable to verify again whether the mistakes noted in the carbon sheets of stencils have been carried out; in a rush of work it does happen quite often that mistakes detected in the course of comparison are not finally rectified.

In conclusion, a checklist relating to the committee work is suggested. The checklist should be memiographed. For each meeting one copy thereof should be used. This, it is hoped, will ensure almost the entire work connected with the meetings of the uni-

versity authorities being accomplished smoothly and with fewer mistakes/omissions. The checklist follows:

1. To issue a meeting notice containing the date, time and exact location of the venue.
2. To communicate to the sections concerned the date and time of the meeting and to request them to forward by a certain date items for inclusion in the agenda, together with self-contained notes, duly approved by the officers concerned.
3. To request Deans of the Faculties to forward items together with self-contained notes for the consideration of the Academic Council which may have emerged out of the proceedings of the faculties/boards of studies.
4. To edit thoroughly agenda notes as and when these are received so that ambiguous points are clarified and supplementary information, if required, is obtained from the sections concerned in time.
5. To ensure safe delivery of the papers to the members of the committee within the time schedule specified in the Regulations framed in this behalf. For this purpose, a list containing the official as well as residential addresses of the members of the committee should be kept up to date, together with their telephone numbers and telegraphic addresses. It would be helpful if the outside members are requested to indicate the places where they would stay when they come to attend the meetings so that the papers which become ready for submission at the last moment could be delivered affording them at least a few hours to study these papers.
6. To make necessary arrangements for the meeting, including tea coffee lunches, transport, accommodation for members in the University's Guest House, Hostel, pads, pencils, ash trays, T.A./D.A for members etc. And to review these arrangements at least two-three days before the date of the meeting.
7. To take attendance at the meeting. For this purpose, there should be either a Register or a list of the members prepared in an alphabetical order to facilitate their ticking off.
8. To give to the secretary of the Committee, at least two days before the meeting, all the supporting papers connected with agenda for discussing them with the chairman.
9. To prepare the Minutes Book and get it signed by the Chairman.
10. To compare draft minutes with reference to each agenda item before submitting them to the chairman for his approval.
11. To send copies of the Agenda and the Minutes to the Union Ministry of Education and Social

Welfare/State Government concerned as per the provisions contained in the relevant Statutes/Ordinances.

12. To forward copies of the agenda notes as well as of resolutions to the sections concerned for being kept in the respective files for future reference.
13. To take follow-up action on the minutes.
14. To approach the Visitor/Chancellor (through the Union Ministry of Education or State Education Secretary, as the case may be) for obtaining the approval of new Statutes, or amendments to the existing ones in accordance with the provisions contained in the University Statutes.
15. To open separate folders containing "Reports on Action Taken" as well as statements containing records of discussions, and to review them from time to time, say after every two months, for watching the implementation of various decisions.
16. To prepare an index to the minutes, subject-wise.
17. To get bound at least one set each of the Agenda papers and Minutes.
18. To arrange for the printing of Minutes.
19. To enter the names of members of the various committees in the membership register maintained for the purpose under appropriate headings and to carry out changes as and when they occur and to take timely action to fill up casual as well as regular vacancies in terms of the relevant Ordinance Statutes.
20. To keep properly spare sets of the agenda and minutes.
21. To return original papers/files received from sections in connection with the meetings as soon as minutes have been approved by the chairman.
22. To keep up to date the Master copies of the University Act, Statutes, Ordinances, Rules etc.
23. To take out spare copies of Statutes/Ordinances/Rules etc., (after the Minutes have been confirmed) and circulate them among sections concerned and to place copies thereof in the relevant files.
24. To enter in a register particulars of the new statutes, ordinances, rules and regulations as well as amendments to the existing ones approved by the various authorities.
24. To record any fresh points which may occur to the office Assistant engaged in committee work which may help in its smooth working.

Vocationalization of Education

(Contd. from Page 3)

The parents attached a tag of lower social status to vocational courses leading to blue collar jobs as against the white collar prestigious jobs. These were some of the important reasons responsible for resistance to vocational courses.

Once more the legend of vocationalization of education has been raised. This time it is at +2 stage. After class X, there will be two streams—the academic stream leading to university education and vocational/technical stream which might be terminal in nature. The main purpose is said to be 'to siphon off' about 50% of students joining class XI to vocational stream. Presumably, this will relieve the universities of the increasing pressure for admission. I am of the opinion that this should not be the major purpose of introducing vocational courses at +2 stage. The major goal, according to me, is to attune education to societal requirements in an industrially and technologically developing world.

Introducing vocational courses after secondary stage will go a long way to meet these societal requirements. Vocationalization of higher secondary education is a pressing need—educationally and socially efficient. Relieving university of admission pressure might be a concomitant outcome only. India is, by no means, an over educated country and if society wants more of university educated youth, I

am afraid to say that we will not be able to resist that pressure. Let us remember that we are not in a position to guarantee jobs even to products of vocational education.

The Gujarat State, to which I belong, has taken a decision in favour of the new pattern. An outline of the proposed new vocational scheme at +2, which is in the process of evolution, is being narrated here very briefly.

In Gujarat the various vocational courses which are under preparation for secondary school certificate (SSC) passed students can broadly be categorised as under:—

- A. Diploma course of three years duration.
- B. Courses for Technical stream for students undergoing education at higher secondary stage.
- C. Courses of about two years duration which will be of terminal nature.
- D. Courses for students completing XII standard of technical stream and who will not get admission for engineering course and who also would not go for science courses.

The main purpose of emphasizing the vocationalisation is to divert the present increasing pressure

on higher education to vocational streams. According to the suggestions of the Education Commission (1964-66), by 1986, we should reach a target of 50 per cent of S.S.C pass candidates being diverted for vocational courses. It is estimated that about 90,000 students will pass the new S.S.C. from the Gujarat Board in 1976. Out of these there would be about 25,000 students who are not likely to study further. Out of the 65,000 students joining university about 50 per cent should be diverted for vocational courses of technical type. Since the target is to be reached by 1986 it is proposed to make the beginning by diverting 20 per cent of the candidates now joining the university courses to the vocational courses. This figure works out to be 13,000. Out of this, it is proposed to divert about 2,500 candidates for higher secondary technical stream; 2,500 candidates for diploma courses and about 2,000 for the present post XI courses of Industrial Training Institutes and the Technical Examination Board. The remaining 6,000 students are proposed to be diverted to vocational stream of the terminal type. For them the courses in various fields, as given below, are being identified:

- (ii) Civil Engineering; (ii) mechanical engineering
- (iii) electrical and electronics engineering; (iv) chemical engineering; (v) commerce; (vi) public services; (vii) paramedical; (viii) Agriculture; (ix) textile; (x) tailoring and allied vocations.

Let us analyse the situation. By 1976 there would be, according to the present estimates, 6,000 students who would join higher secondary vocational stream of the terminal type. (This number will increase every year). After two years these students will pass out 12th standard with vocational courses and will enter into the employment market. At present the employment market is tight and the opportunities are limited. This is supported by the findings of the survey carried out by the Indian Institute of Management, Ahmedabad, which states that about 37.5 per cent of the Industrial Training Institute trainees are employed and a great number do not get jobs in their own districts. It means that the schemes of vocational courses are being launched without assessing the man-power requirements.

It is also observed that inspite of provision of number of vocational subjects in the existing S.S.C. Curriculum the number of pupils offering the vocational subjects is negligible as compared to the number of pupils appearing at the S.S.C. Examination. It, therefore, means that students in general still possess glamour for white collar jobs. The university degrees have their face value and transit value and the people in general clamour for the degrees.

Introduction of vocational courses at +2 stage and siphoning off a good number of students to these courses by raising hopes of easy job may result into frustration when suitable jobs are not available. The students may be left between the devil and the deep sea.

The creation of +2 stage after the school education of ten years may not succeed in diverting about 50% of the students to vocational courses as visualized. The lower social status value of vocational courses would result in all students joining academic courses — no matter what the education pattern is. But even if students join the courses, these courses should not be merely employment oriented but they should be oriented to self-employment also.

A suggested solution :

If the vocational courses, envisaged as terminal ones, may not turn out to be so and students of vocational/professional courses leading to degrees or even to degree giving academic courses, the education system should have provision for this.

Learning from the past experiences, I am of the opinion that any further attempt of vocationalization of education should be based on the following considerations :

1. A good education whether general-academic or vocational—technical should remove the dichotomy between intellectual and manual work. Gandhiji's basic education and Lenin's polytechnicalization of education support this. If this is accepted, every student should have a minimum quantum of academic (intellectual) as well as vocational/technical (Manual) education. At +2 stage, a student can select a combination having a smaller quantum of vocational education and a larger quantum of academic education or he may select a combination involving a larger quantum of vocational education and a smaller quantum of academic education. The first combination may enable him to go to academic courses in universities and switch over to vocational courses if need arises, whereas the second combination may lead him to terminal vocational courses and even switch over to university courses if need arises.

2. Our education system is much under criticism because of, amongst other reasons, single entry system and a blind lane character. In order to make the new system successful and achieve the targets of vocationalization and diversion of 50 per cent students to vocational courses it will be essential to have a multiple entry system and provisions of interchangeability between academic streams and vocational courses. This will also facilitate to remove the psycho-social barriers against the vocational courses, mentioned earlier as the student with capabilities and interest will be able to join the academic streams and vice-versa.

3. Since the pressure on academic courses in the universities is largely due to the jobs being linked with degrees effort ought to be made to delink the degrees from jobs. In order to destroy the historical legacy of putting supremacy on academic courses over the vocational courses, there may be a legislation which should provide a preference for jobs to those having

two year vocational courses at least upto a certain level of jobs relevant to the respective vocational training. This preference should be equally applicable to Government jobs, jobs in industrial establishments and in public as well as private sectors. However, in order to protect the university graduates, separate entries and separate cadre may be created for them in the various sectors of employment.

4. In such case the +2 stage is going to be very crucial years in the life of student. It will require a focussed attention to see that students after the +2 stage enter the university with a sense of responsibility and certain degree of maturity. To meet this end, especially enriched programmes of Physical Education, NSS, N.C.C., etc. should be conducted for the students at the +2 stage.

The +2 year may be separate institutions which may be called the higher secondary school or junior colleges, but they should be in the same campus as the degree college or the university degree classes.

5. The vocational courses should not only be employment oriented but also oriented to self employment.

If these considerations are taken care of, it will be possible to link vocational and academic education courses at +3 stage and facilitate switching over from one stream to another.

Though this, the gap dividing the vocational and the general education will be bridged and the two streams will be closer to integration. The universities or institutions of higher education would receive students from various streams—predominantly academic or predominantly vocational with carefully planned bridge courses, the education system at the +3 stage will provide a flexible structure for smooth switch over from one stream to another. Once we agree to the principle to provide a provision of higher education to students of +2 vocational stream, I propose the following three alternatives :

I. The existing degree course may be extended to four years. In the first year the level of academic subjects (mathematics, physics, etc.) of +2 standard may be up-graded so that the students may overcome their deficiency and the remaining three years may be spent on the existing syllabus.

II. Under the second scheme the upgrading of the academic courses may be confined to one semester of six month and five semester may be spent on the existing syllabus. The total duration remains three years.

III. A new scheme of three years vocational degree courses may be provided. The vocational courses of this degree would be the extension of the courses of +2 vocational stream.

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Strength and weaknesses of Higher Education

Prof. Satish Chandra, Chairman, University Grants Commission, in his convocation address at Panjab University highlighted the achievements in the field of higher education. He said that higher education has expanded greatly to draw in large sections of the city and the rural population. Centres of high quality research and teaching have been established in various parts of the country. We have the third largest trained scientific manpower of the world. It is largely scientists trained in India who are transforming our agriculture to feed the rapidly growing population who have enabled us to master the secrets of atomic energy and have now brought India to the threshold of probing the heavens. A new threshold of adventure and excitement in the field of science and technology awaits our youth.

During the past three years the University Grants Commission has engaged itself in the task of critically evaluating the level of development in the various institutions of higher education. It has reviewed the various programmes developed by the Commission and has put forward new programmes for consolidation, raising standards, making the system of higher education more relevant to the national needs which have greater elements of social justice and provided equality of opportunity.

Some of the major weaknesses of our system of higher education like unplanned proliferation of universities and colleges; vastly unequal standards; absence of rigorous insistence on standards and lack of selectivity and absence of overall planning still continue. Most of these weaknesses can be

traced to the high rate of expansion of higher education which makes it impossible to maintain standards. However this is only partially the problem of regulating growth of numbers in universities and colleges. There had been a steady decline in the growth rate of students from 1969-70 to 1973-74. If we exclude the intermediate and PUC enrolments, the growth rate has declined from 5.7 per cent in 1971-72 to 3 per cent in 1973-74. But if we include the pre-University, intermediate and pre-professional classes, it has declined from 14% to 8.5%. Thus the real pressure of expansion is on P.U.C and Intermediate where rapid growth is necessary. It is visualised that vocational training would be introduced in a big way at the plus 2 level.

Apart from the necessary resources being available, this implies a big effort on the part of universities to train teachers with the necessary background of science and technology and work experience. The recent fall in science enrolment in the universities and colleges is a cause of worry as science and technology are the necessary base for a sustained economic growth of the country. If the universities embark on a meaningful programme of training science teachers for the secondary level, and the economy picks up, as it promises today, the downward tendency will soon be reversed.

The major problem before the country was not so much regulating the growth of student enrolment but of regulating the unplanned proliferation of universities and colleges. While the enrolment during 1973-74 rose only by 65,440, during the period

125 new colleges were set up, i.e. one college to every 500 students. Considering that 50% of our 32,000 arts, science and commerce colleges already had an enrolment of less than 500, whereas a viable college, according to the Education Commission, should have at least 800 on rolls, and an optimum size was about 1500. It was clear that the setting up of new colleges was a tremendous waste of scarce resources unless these colleges were set up in backward areas.

It was therefore necessary that the State Governments and universities had a definite policy about the setting up of new colleges. Some States, such as Maharashtra, had already enacted legislation that no new colleges could be set up without the prior concurrence of the State Government. This would also ensure that instead of new colleges coming up in the towns or in the districts already having a number of colleges, due attention could be paid to the needs of educationally backward areas. Legislation along these lines could be enacted at the national level. The UGC has already laid down guidelines regarding the criterion a new college would have to satisfy in order to be eligible for central assistance.

Since more than 90% of the undergraduate students and 50% of the postgraduate students study in colleges, we cannot raise educational standards without paying due attention to raising standards in the colleges. The universities should therefore play a much more active part in this area than they have done in the past. It is hardly possible for the Commission with its limited resources to pay equal attention to the developmental needs of every college. The universities have been invited to treat the district as the basis for planning the development of the colleges. A selective approach is very necessary. The Commission has also invited a number of uni-

versities to assess the students in the postgraduate Colleges affiliated to them so that a coordinated plan for their development could be drawn up. All these measures could only be successful if the universities have strong planning cell headed by the Vice-Chancellor or a senior teacher for planning the development of the teaching wing as well as the broad development of the colleges affiliated to universities.

The problems of relevance in education was more difficult than was often assumed. Many people interpreted relevance in education to mean job-oriented education. It was difficult to accept this from conceptional as well as from a practical point of view. We are living in an era of rapid technological change. The existing technology is being continually outdated and programmes of retraining have become necessary, both for institutions and individuals. If the universities train students narrowly for specific jobs, what was the guarantee that such jobs would be available by the time the students have taken the degree. Secondly in the light of rapidly changing technology the student has continually to adjust himself to new requirements. This he could only do if he is equipped with fundamental theory. The basic purpose of university education is to equip the students with high level theoretical knowledge, of understanding the basic concepts regarding man and society and of training the mind and the sensibilities of the students. Our basic weakness is that we do not equip our students with theories and concepts at the requisite level. That is why it is necessary to update and revise the syllabi. Secondly, we do not teach them to apply the theories and concepts to the solution of practical problems. The Commission has been trying to link, theoretical studies to practical or field oriented studies. It is however not opposed to the universities instituting short-term diploma courses designed to equip students with intermediate level skills. In fact the Commission has already assisted a number of universities to start such courses. But it has

cautioned them to be prepared to change and adapt these courses rapidly in order to suit the changing job requirements.

The National Service Scheme and the programmes of continuing and adult education are designed to bring the universities into closer contact with wider community. The experience gained by the universities in these programmes would have a direct bearing on the nature of the courses taught by the universities and of their modifications in the light of the needs of the wider society.

The national emergency has been a major factor in clearing the atmosphere in the universities and the colleges. They can now function peacefully and teachers and students can resume their quest for knowledge without threats and intimidation. The changed situation has however posed a new challenge to the academics. They have now to justify themselves in the eyes of society which has great expectations from them by embarking upon sustained plans of research and for raising academic standards. The teacher associations have now to function in a new manner. They can no longer afford to be primarily trade unions but means for raising the academic competence of teachers, and of promoting greater inter-action between teachers and students and teachers and society. The teachers have to rise up to the challenge.

The Commission has with the help of expert committees largely completed the task of assessing the academic work and programmes of development of various universities. While the Commission has not been able to give as much money as they need, it has been able to allocate an amount equal to roughly two-thirds of the ceiling within which the universities had been asked to submit their plan proposals. As the resources position improves, the Government and the Planning Commission are expected to allocate the resources to the universities commensurate to the legitimate developmental needs. Meanwhile the

universities will have to learn to approach the various usual individual agencies such as the Indian Space Research Organisation, the National Electricity Board, the National Environmental Commission, the Commission on Metallurgy, as also business houses for funding R&D type of research relevant to them. By far and large the universities will have to tighten their belts how to use the available resources in the most effective manner. For the purpose, they have to take an integrated view of plan and non-plan funds.

It has been suggested that the Commission should try to establish uniform syllabi in all the universities in the country in order to make it easier for students to migrate from one institution to another. Migration of students as well as staff is necessary and desirable and the Commission has developed a number of programmes to promote it. However we are at a stage in our national development where a spirit of experimentation, innovation and adventure in the field of education is more important than uniformity which could curb initiative. If the universities in the region develop specialisations which are not duplicated, migration of staff and students would be more fruitful. The Commission has tried to ensure it with the help of visiting committees. But this venture can only be successful if the universities in the region develop a sense of team spirit and mutual cooperation.

The Panjab University has been in the forefront of higher education for a long period. The Commission has selected a number of departments in the university for developing collaborative research programmes with universities and institutes of higher learning in a number of countries such as the USSR, Germany, Britain etc. The Panjab University is hosting a number of seminars and workshops devoted to the revision of the syllabi reforms in the system of examination and discussion on specific academic topics. It has thus emerged as an important centre for intellectual and research activity.

ROUND UP

Academy of Sciences for Tamil Nadu

The Vice-Chancellors of the universities of Tamil Nadu have decided to set up Academy of Sciences, an autonomous body to see the progress of education, research and science development in the State. After the conference Dr. Malcolm S. Adiseshiah, Vice-Chancellor of Madras University said that the academy will review periodically the study of research in the various fields of sciences: Physical sciences including mathematics and engineering, Biosciences including medicine and veterinary, Earth Sciences including agriculture and Social Sciences and Human Sciences. The other function of the academy would be to provide help and guidance to State Government in formulating science and technology policy, recommending grants for specialised equipment and organisation of subject courses relevant to the needs of the State, recommending research projects at faculty and inter-disciplinary levels, organisation of seminars, symposia and conferences at State, national and international levels and coordination of the activities of various societies and institutions of science and technology in the State and publishing proceedings and journals.

The academy is one of the two apex organisations recommended by the State Planning Commission in its preparatory plan on education, science and technology entitled 'Towards a Modern Society'. The other body is the Tamil Nadu Science Foundation which will be an autonomous funding agency to be established by legislation. The State Government is already considering the setting up of such a Foundation.

A small sub-committee consisting of Dr. G. Rangaswami (Agri-

culture), Dr. G. R. Damodaran (Engineering), Dr. M. Natarajan (Medical Sciences), Dr. S. Chandrasekhar (Social Sciences) and Shri S.V. Chittibabu (Human Science) has been set up to draw the constitution of the proposed academy. The academy shall have 200 elected fellows and 25 honorary fellows. The committee would nominate initially 50 fellows who would be meeting shortly to formally launch the academy. It has been agreed to recommend that each of the university in the State should contribute Rs. 5000 annually and the fellows Rs. 100 and life members Rs. 1000 to the academy. The proposed Tamil Nadu Science Foundation would also be assisting the academy financially.

VCs of N-E Region meet in Shillong

Shri L.P. Singh, Governor of Assam met the Vice-Chancellors of the north-eastern region in Shillong recently. Dr. H.K. Baruah of Gauhati, Shri J.N. Das of Dibrugarh, Dr. L.S. Negi of Jorhat and Dr. Chandran D.S. Devanesen of NEHU, were present. The various socio-economic and cultural problems of the region were discussed. The need for orienting higher education towards the solving of these problems was also stressed. Shri Singh suggested that the universities of this region should cooperate and coordinate their activities for the development of this area. For this purpose he suggested that the regional inter-university meetings of students and Vice-Chancellors should be organised. Inter-university debates, sports meets, cultural festivals, seminars and workshops could also be organised. The question of adoption of the new pattern of education was also discussed and it was em-

phasised that the faculty should be involved closely in framing of the syllabi for the various stages of education.

At the postgraduate level it was suggested that the exchange of teachers and the research staff between the universities in the region would be helpful in maintaining the standard of education. The problems relating to the affiliated colleges and staff requirements was also considered. Common guidelines for admission and mode of selection, pay scales and allowances of college and university teachers, the national service programmes and improving the qualifications of the teachers and starting coaching classes for IAS and other allied services examinations were also discussed. The Chancellor stressed the need for integrated approach between professional and academic universities which face a common task of contributing to the welfare of the people. He said that the important criterion for research should be whether it meets the needs of the nation. He felt that the existing syllabi should be reorganised and new courses should be introduced to cater to the needs of national development. It was agreed that the Vice-Chancellors of the region should meet the Governor once in every six months to discuss their problems.

Correspondence Courses for Kashmir Varsity

An Institute of Correspondence Courses has been set up by the University of Kashmir. From the academic year 1976-77 undergraduate correspondence courses in the Faculty of Arts and Commerce would be started. The duration of these courses, the syllabi and other conditions for appearing in the examinations will be the same as prescribed by the university for its regular students. English will be the medium of instruction and examination in all the subjects except in Oriental, Classical and Modern Indian Languages. The students enrolled under this scheme will be able to study at their places of residence

of work and simultaneously continue their higher studies at leisure. The admission to these courses will be open to candidates from all parts of the country.

Lecture-scripts and other instructional materials would be mailed to the students at regular intervals and they would be required to send their response sheets to the university for correction and evaluation. Personal contact programmes would also be arranged for the interaction of student and teachers. The entire course of a subject will be divided into suitable number of units and lecture scripts will be prepared by competent teachers in individual units. The scripts will include questions and exercises which would be regularly mailed to the students. After the students had studied the scripts and other reading material they will be required to answer the questions in the response sheets. It will be compulsory for them to return at least 75% of the sheets. The personal-contact programme will include lectures and discussions between the students and teachers at various places wherever sufficient number of students are enrolled.

To begin with, instructions will be provided in the following subjects. Arabic, General English, English Literature, Economics, Education, Hindi, History, Political Science, Persian, Punjabi and Urdu for the BA courses. Commerce & Book Keeping, Economics and Commercial Geography, Shorthand and Type-writing and Modern Indian Languages for the B.Com courses. The students will be required to offer General English and any three elective subjects.

To be eligible for enrolment, students must have passed the Higher Secondary Examination of the University of Jammu and Kashmir before 1965 or the Jammu and Kashmir Board of Secondary Education or any equivalent examination like the Pre-University examination of the Jammu and Kashmir University before 1970.

Longterm Plans of Jammu Varsity

Shri J. D. Sharma, Vice-Chancellor, Jammu University has worked out a plan for the future development of the university. At present the university is facing acute shortage of space and is in urgent need of a new campus. State Government recently allotted 125 acres of land but the university has so far got possession of only 73 acres. The remaining portion is expected to be transferred as soon as the acquisition of land is completed by the State Government. This has led to the postponement of number of construction projects and the extension programmes of the university.

A grant of rupees one crore will be initially required to develop the new campus. This is all the more necessary as the Jammu University has come into being without any foundation grant. The faculty improvement scheme has been implemented this year. The programmes relating to improvement of standards and professional competence of teachers of affiliated colleges, restructuring of courses at the degree level to make them relevant to the rural environment and developing needs of the community and vocationalisation of syllabi are being examined. The university would soon be constructing six complexes for Department of Bio-Sciences, Law Faculty, library building, education and home science departments and guest house of the university. The UGC will finance 50% of the total cost which is estimated at Rs. 24 lakhs. For the balance the university will have to depend on the State Government. A sum of Rs 3 lakhs has already been sanctioned for the site development work. The future plans and programmes would depend much on the construction of the new academic complex.

Semester in 40 Madras Colleges

The University of Madras would be introducing semester system at the undergraduate level from the academic year 1976-77

in forty selected colleges. The selections have been made on the basis of their being able to have a class strength of not more than forty students in Science Faculty, not more than fifty in Humanities and Social Sciences and not more than sixty for language courses. To begin with five subjects in BA and twelve subjects in BSc would come under the semester pattern. The subjects are Economics, History, Philosophy, Tamil, English, Mathematics, Statistics, Chemistry, Botany, Zoology, Home Science, Nutrition and Dietetics, Child Health, Social Welfare, Food Preservation, Interior Design and Biochemistry.

Dr. Malcolm S. Adiseshiah, Vice-Chancellor, has also announced that from the next academic session all the postgraduate programmes in Science and Arts would be functioning under the semester system.

The university also proposes to initiate action for the delegation and decentralisation of responsibility in higher education for the renewal of curriculum. The university departments are proposed to be made the focus of academic excellence and the old valuation system would be revived. As a part of the new programme, an effort would be made to upgrade the syllabi and courses in consonance with the development of new knowledge and new techniques in various disciplines.

New Courses

Madras University has set up an advisory council on trade and industry. A 35-member council has been constituted to make recommendations for the institution of need-based postgraduate courses of different levels and of different durations. Short-term refresher courses in different fields would also be initiated like postgraduate, diploma, evening and correspondence courses. Workshops and seminars in various specialities and collaborative programmes would be arranged with the help of professional bodies. The Vice-Chancellor had prolonged discussions with the representatives of trade and

industry in this connection. He stressed the need to close the gap between the world of work and world of learning. After a series of discussions, a machinery for interaction between universities on one hand and the industry and trade on the other has been devised. The Advisory Council would soon set up specialised boards of studies to draw the curricula for the courses of studies. The Department of Adult Education and Continuing Education to be set up in the university would act as the Secretariat to this Council.

The university has also planned to institute a new Master of Information Science course under the Faculty of Management Science. The duration of the evening college courses has been reduced as is now the same as for the full time day courses. But the number of working days in a year has been raised to 225 of three hours each.

Legal Aid Centre

A Legal Aid to the Poor Centre has been established in the Law Faculty of the Kurukshetra University. It was inaugurated on the 20th March, 1976 by Mr. Justice V.R. Krishna Iyer of the Supreme Court at a function which was presided over by Mr. Justice R.S. Narula, Chief Justice of the High Court of Punjab and Haryana. S. K. Dutta, Vice-Chancellor will work as Director-General of the Centre. The object of the Centre is to involve the law students in the rendering of legal aid particularly to indigents and weaker section of the community. The legal aid shall consist of legal advice, arbitration and conciliation, preparation of legal documents and the creation of legal awareness and assertiveness in the masses. The students will become active participants in the delivery of such legal services while at the same time improving the contents and methods of their legal education in the process. Thus the Centre will provide not only a client service to the common people but it will also prepare the students for their careers as lawyers by giving them clinical training. Speaking at the inaugural func-

tion the Vice-Chancellor said that the Advocates Act should be amended so that senior students might participate in Court proceedings under strict supervision.

Recent Developments in Patna University

The Patna University has decided to put a ban on double course system for its students from the next session. The Bar Council had been insisting for quite some time that the law students should not attend to other degree or diploma courses simultaneously. The Council had also recommended that the colleges should introduce viva-voce test prior to admission of a candidate in law college and should make practical training compulsory for their students. These provisions would also be gradually implemented.

The university had set up a Small Industries Research Training and Development Organisation at the Bihar College of Engineering to aid the techno-entrepreneurs under the self-employment programme. This step is likely to solve the difficulties faced by existing industries with process, quality and at the same time provide testing facilities. It would also provide sandwich courses for industrialists. The organisation will undertake machines and equipment fabrication, quality casting, gear manufacturing, manufacture of housing components, prestressed concrete pipes, instruments, medium-press articles, dies, plastic products and other items demanded by Agro-Industries and Scooter Project.

Dr. D.N. Singh who is the Director of the organisation is very hopeful that the organisation will play a vital role in the generation of self-employment for techno-entrepreneurs coming out from colleges. It would also provide good opportunity for verification of practical approach to the faculty members.

Assam Science Society

The 20th annual conference of the Assam Science Society was held this year at Jorhat. The North-Eastern Council for the

first-time offered financial assistance to the Society for collecting and compiling up-to-date data on the three important resources of the region for the general information of the academicians, technologists and planners and also for surveying the potentiality for further utilisation and development of these resources which have so far remained untapped.

The society is working out plans for collaboration of researches on the utilisation and development of three most important natural resources of the region, viz., mineral, agricultural and forest.

A children's Science Museum will be built by the Society at Gauhati on the 20 bighas of land which is expected to be allotted by the State Government. It is proposed, as an interim measure, to start an organisational unit of the museum which will serve nucleus of the main project in this current financial year. Efforts would be made to procure working models and displays for this unit. The society has also taken up new schemes with a view to increasing the scope of the manifold activities of the organisation. These schemes include further development of the Hobby Centre, Science Reference Library and Audio-Visual aids. The society plans to organise a centralised hobby centre unit with the aim of providing facilities for electronics, photography, model making and chart making. Suitable awards in the form of models and cash prize to scientists and technologists would also be instituted. An institute of Fundamental Research is also proposed to be established. A sub-committee was constituted to work out the details of this project. The Assam Government has sanctioned Rs. 55,000 as recurring grant and Rs. 20,000 as developmental grant to the Society during the year. Gauhati University is also substantially assisting the society.

Symposium on Medicinal Plants

Dr. B.P. Pal, President, Indian National Science Academy, while inaugurating the Fourth Indo-

Soviet symposium on the chemistry of natural products and their pharmacology at the Central Drug Research Institute, Lucknow, emphasised the multi-disciplinary approach in the study of vegetation to find medicinal value of the plants. He said that a coordinated investigation of properties of plants would go a long way in evolving useful drugs for the benefit of humanity. The biological sciences in view of the recent advances are in a better position to coordinate the activities of other disciplines in this field of research.

Prof. A.S. Khokhlov, Leader of the Soviet Scientific Delegation referred to the various achievements of the Central Drug Research Institute which has become one of the important centres of research in India.

The six day symposium was organised under the scientific collaboration agreement between the Soviet Academy of Sciences and Indian National Science Academy. About 132 papers dealing with Chemistry and Pharmacology of medicinal plants and with antibiotics and hormones were presented. The participants included members of the Russian Academy of Sciences besides Indian scientists.

Bhagalpur Symposium

A symposium on 'Physiology of Micro-organisms' was held recently at Bhagalpur University with the financial assistance of the University Grants Commission. More than fifty microbiologists from different parts of the country attended the seminar.

The role of micro-organisms in agriculture and industry was the main theme. The seminar was divided into seven sections, viz., Microbial nutrition, Physiology of growth, Physiology of reproduction, Physiology of parasitism, Physiology in aid of taxonomy, Microbial metabolites and Viruses and micoplasmata. The symposium was inaugurated by Prof. R.N. Tandon, President, National

Academy of Sciences, Allahabad. Dr. Anthony Johnston, Director, Commonwealth Mycological Institute, Kew (England) also attended the symposium.

Electron Microscope Grids

A group of scientists at the Indian Institute of Technology, New Delhi, have developed electron microscope grids of copper, nickel and chromium for the first time in India. Professor K.L. Chopra and his colleagues in the Department of Physics have been responsible for this development which will save the country Rs. 5 lakhs foreign exchange annually. The specimen of the grid is extremely thin, about one millionth of an inch and these have been supported in a mesh structure which must have sufficient free space to allow the electrons to pass through. In view of the increasing use of electron microscopes it is expected that the demand for these grids will go up.

Research in Military Science

A two-day seminar on Military Science and National Security was organised at PPN College of Kanpur University. The seminar recommended that research degree committees on Military Science be organised in universities to facilitate the teachers and students to pursue research in the various aspects of Military Science.

The seminar was inaugurated by Brig U.C. Pant who stressed the necessity of the study of Military Science for everyone in society. He said that these studies should form part of the university education. Dr. Y.K. Sharma of the Department of Military Studies of the PPN College, was the Director of the seminar. About 30 teachers of military Studies from various colleges and universities of Uttar Pradesh attended the seminar.

Ayurvedic Degree Courses

Calcutta University recently granted affiliation to the Pre-medical course in the Ayurvedic system of medicine. The students who have successfully completed the course will receive the degree equivalent to MBBS. So far two diploma courses have been started for students of Ayurvedic medicine. The university has also recognised Shyamadas Vaidyashasthapith as an institution to conduct post-graduate courses in Ayurveda. Out of the 400,000 Ayurvedic practitioners, there are about 50,000 present in West Bengal.

Pantnagar Campus for Meerut

A campus of Pantnagar Agricultural University is to be opened in Meerut District to bring the researchers in farm technology and practices much closer to the farmers. The university has also introduced correspondence methods to help farmers in far off places for solving their problems. This is being done in addition to the organisation of Kisan Melas in various regions from time to time.

Gujarat Dispenses Evening Classes

The Gujarat University is likely to close the evening classes in the postgraduate departments of the School of Languages and School of Social Sciences from the coming session. However it will award external degrees to those who study on their own or enrol for the correspondence courses of the university which would be started shortly.

According to university authorities, the evening classes are mostly attended by employed students and there are numerous difficulties in running these classes. Except for English and Economics there is not much rush for these courses. The University Court therefore has recently approved the proposal for starting correspondence courses and the system of external degrees.

Multi-faculty structuring of technological university

M. V. Rajagopal

A three-day seminar was organised in Hyderabad by Jawaharlal Nehru Technological University on its academic reorganisation. The main purpose of the university in convening this seminar was to gather the consensus of various academics drawn from all over the country on the best way of establishing a multi-faculty academic structure in the university. Academics from various universities in the country, the Indian Institutes of Technology, the Indian Institute of Science, Bangalore, Industrial sectors both public and private and national laboratories represent of a cross-section of disciplines like engineering, technology, architecture and fine arts, physical sciences, social sciences, management sciences, humanities and languages, participated in the three-day discussions.

The seminar had the advantage of having renowned engineering educationists from three industrially advanced countries: the United Kingdom, the USA and West Germany. Dr. V. Chandrasekhar, Counsellor for Science and Technology, Indian Embassy, Moscow also participated in the seminar. He put forward the following point for further consideration of the seminar.

1. It would be worthwhile for the university to strike a new path and start some unconventional courses such as space Science, Gene Engineering, Developmental Biology including Biochemistry and Biophysics Computer Science, Robotics, Cybernetics, etc.

2. Russian education in engineering and technology lays greater emphasis on the practical aspects including design and construction. Engineering design in India is not advanced to the extent it should. This aspect should also be borne in mind.

3. Engineering and technological education is incomplete if there is no close liaison between the university and the industry. Experienced practical men from industry should be invited to the university as visiting professors so that the practical aspects could be brought home to the students from first-hand knowledge. The present practice of sending the students for a couple of months for practical training during the vacations alone will not be sufficient. The problems for these project-work given to students should be such that they have a bearing on any particular industry or should be these needed by the industries themselves. In tackling these problems the students should be able to frequently visit the industry concerned and work there. Such a type of practical training will enable the students to get acquainted with the practical side of the subject and develop self-confidence required for his future career.

4. Eminent educationists have often voiced the opinion that exclusive technical education gives rise to lopsided personality in the student and that in order to develop an integrated personality the humanities should not be lost sight of. Institutions like the MIT, Massachusetts have compulsory course in humanities for engineering and technological students. In Russia studies in Marxist philosophy is a must for all university students. Indian thought is the fountain head of spiritual learning and our own contributions to world thought is not small. Inclusion of a suitable course in the engineering curricula of such programmes will go a long way in developing this much needed integrated personality.

The university brought out a background paper to focus the

discussion of the seminar at various levels. A lead paper was circulated to all the participants. Giving the genesis of the formation of the JNTU, the paper highlighted the desire of the university to effect academic restructuring to meet the challenges in its task of fulfilling the objectives. The seminar arranged to obtain the consensus of top academics of the country was sought in academic restructuring of the university.

A technological graduate should be a highly trained person in the engineering knowledge and skills necessary for him to his professional career, but such education should also provide both at the undergraduate and postgraduate levels those other areas of knowledge and skills which may not be strictly technical but yet constitute a necessary requirement for the efficient discharge of one's duties in career that may extend over a lifetime. This would mean that he should also be able to deal with the economic, human and social factors of his professional problems. He should be capable of continuously acquiring and adopting the skills necessary for a world in which change and growth are categorical imperatives. Hence the engineering education needs to be more comprehensive than at present and joint responsibility of a multi-disciplinary faculty. In order to provide such a comprehensive engineering education some of the questions that arise are:

1. What are the various schools of studies to be established in a technological university and in the event of resource constraints, what are the priorities?
2. What centres of learning should each school include?
3. How should the schools function in relation to each other and within themselves?
4. What courses of hard core subjects and elective optionals would make the engineering education comprehensive and complete at the undergraduate as well as the postgraduate levels?

5. What inter-disciplinary and intradisciplinary programmes in engineering are necessary at the postgraduate level to meet the manpower needs of the country?
6. What independent programmes of study and research should the engineering schools offer, apart from their role of supporting the engineering school?

The seminar critically reacted to the various issues raised in the lead paper and after detailed discussions arrived at the following consensus.

It took note of the existing academic organisations of the JNTU and found that it was by and large a Uni-faculty university with constituent and associate colleges as its component units and within the colleges the disciplines organised on a departmental basis. The seminar was positive that the basic character of the university will have to be changed from the uni-faculty to a multifaculty one. This was also in accordance with the intention expressed in Section 4 of the University Act. While the seminar indicated a cautious beginning in regard to the change of the existing structure and broadly agreed that the long range objectives must be the re-organisation of teaching and research at the undergraduate, postgraduate and doctoral levels around well-identified clusters of learning centres which may conveniently be called schools. The seminar particularly emphasised that the initial restructure of the departments and their eventual organisation into school must be gradual and based on emerging experience. The seminar was of the view that there should be any number of schools depending upon the focus of each sub-

ject or group of subjects. But the exact number depended on the present resources of faculty, equipment, libraries, laboratories, workshops, etc.

A beginning should however be made in relation to existing needs and resources. For this purpose the seminar suggested that the schools to be established first in the sequence of time may be one for engineering and technology, one for architecture and fine arts, one for physical sciences and one of humanities and social sciences. Areas of knowledge which could eventually sustain schools of their own may be initially established as centres in one of these schools depending upon their relation to the main academic concern of the school. While the multifaculty structure needs considerable resources and therefore had to be concentrated to a large extent at the campus it should not be ruled out in principle that the other campuses of the university like Kakinada, Anantpur, Warangal cannot develop similar academic structure in course of time. In the meanwhile the multi-faculty structure of the main campus of the university apart from feeding the emerging postgraduate centres should also service the undergraduate courses in all the colleges of the university.

Apart from these recommendations concerning the structuring of the university, the seminar recommended a series of useful activities for the university such as the organisation of science and industrial consultancy cell, the quality improvement programme, the curriculum development cell, exchange of faculty between industry and the institutions and free mobility of staff and students among the constituent and associated colleges of the university.

'Extracted from a talk given at All India Radio, Hyderabad'

Fellowships for students

To commemorate the tricentenary of Guru Tegh Bahadur martyrdom, the Panjab University has instituted special fellow-

ships in the colleges for brilliant students. Essay competitions would also be organised in the university colleges on the various aspects of the Guru's life in the tricentenary of his martyrdom.

Edowment funds raised in Punjabi Varsity

The Academic Council of the Punjabi University has decided to raise the endowment fund from Rs. one lakh to Rs. two lakhs in the case of privately managed educational colleges and from Rs. fifty thousand to Rs. one lakh in the case of girl colleges affiliated to the university. This step has been taken to ensure greater economic viability of the privately managed colleges. At the instance of the Vice-Chancellor, Mrs. I.K. Sandhu, the Council also decided to continue the system of reserving two additional seats for women in each of the university teaching departments and in colleges affiliated to the university. This procedure was adopted during the international women year.

Common tests for State Universities

Shri K.K. Shah, Chancellor of Universities of Tamil Nadu recently suggested that a common examination for all the state universities should be made to ensure fair selection of candidates for admission to colleges. He pointed out that in some cases entrance examination becomes an instrument of either money-making or exercising patronage. A common examination for all the universities would correct such malpractices and ensure admissions purely on merits.

Applied Chemistry Endowment

The Department of Applied Chemistry of the University of Calcutta is getting in touch with the ex-students of the department who are occupying responsible positions in trade and industry in various parts of the country to create an endowment in the name of late Dr. H.K. Sen, the first Rash Behari Ghosh Professor of Applied Chemistry and Head of the Department.

The department has also plans to build up effective collaboration between the industry and Applied Chemistry Department for the benefit of industry in the State.

Developments in Marine Geology and Oceanography

The entire country is proposed to be covered by detailed geological surveys in search of new mineral deposits. Investigations in recent months have already yielded promising results in the field of marine geology. Extensive new deposits and reserves of several minerals have been located. They include sufficient quantities of copper, lead and zinc.

India's first scientific research ship R. V. Gavoshani was handed over to the Council of Scientific and Industrial Research by the Garden Research Workshop in Calcutta. The research vessel has been provided with different laboratories and instruments for carrying out research in various fields of oceanography-geography, geological, chemical, physical, biological and meteorological. A bigger and more sophisticated oceanographic research vessel-cum-drill ship is also proposed to be fabricated. Such a ship would be relevant in the context of the country's search for oil in the field of off-shore technology.

Soyamilk Technology

The scientists of Pantnagar University in collaboration with the University of Illinois (USA) have developed a new technology for the manufacture of soyamilk

and related products. Recently intensive consumer acceptance trials were conducted by the university. These trials have revealed that the technology could now be handed over for commercial exploitation to suitable entrepreneurs for the production of milk and other products. These products will be a source of good quality proteins.

Material Handling Course

The Visakhapatnam Port Trust has sanctioned a sum of Rupees five lakhs to Andhra University for starting a course in Material Handling Process in harbours. The university would be organising this job-oriented course from the next academic session. Besides training the Visakhapatnam Port employees it would be open to the personnel coming from other States.

Panjab opts for Semesters

The Senate of the Panjab University has accepted in principle the introduction of the semester system in selective subjects for master's degree. The semester system at the postgraduate level in Statistics would be introduced in the first instance. The Senate also approved the institution of one year advance diploma course in Chinese language. The university also proposes to introduce

correspondence courses at the postgraduate level in English, Public Administration, Economics, Political Science, History and Philosophy and condensed course in Law for the members of Parliament, Legislative Assembly and Legislative Council.

O.U. Computerise Results

The Osmania University computer centre was inaugurated recently by the Chancellor. He said that the computer programming during recent years has assumed great export potential and should be well developed in universities. The Vice-Chancellor also announced that all admissions and examination results of the university from the next year will be computerised.

Language Laboratory

The University Grants Commission has sanctioned a language laboratory costing Rs. 12 lakhs to Madurai University's English Department. The laboratory would be useful in training the English teachers in the latest methods of teaching.

Grievance Manual

The Indian School of Mines, Dhanbad, has formulated a code of conduct and grievance procedure for maintaining student discipline on the campus. The rules have been framed for all kinds of disciplinary problems and detailed procedure have been laid down for redressing the grievances of students. 'Student Discipline and Grievance Procedure' booklet can be had from the Registrar of the School on request.

Rohtak University

Rohtak is likely to have a full-fledged university from the next session. The University would lay special stress on the development of medical sciences and bioscientific research. In the meantime adequate funds have been sanctioned by the Haryana Government for the Medical College and its rehabilitation centre to strengthen its activities.

UNIVERSITY OF KERALA

No. Ad. AII-3-169/76

Notification

"The University Notification No. Ad. AII-3-169/76 dated 25-2-76 inviting applications for appointment to teaching and other posts in the University Departments is hereby cancelled. Those who have applied for the required application forms and other details paying the prescribed fee will be supplied the same when a fresh notification inviting applications for the same posts is published. The application forms already issued in connection with the above notification can be used for applying for the posts when they are re-advertised".

Sd/-

(A. Sreedhara Menon)
REGISTRAR

2-4-1976

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF DELHI

Advt. No. Estab. IV/31/76

Applications on the prescribed form are invited for the following posts :—

Sr.No.	Department	Designation & Areas of Specialization :
1	Faculty of Music & Fine Arts	One Professor in Karnatak Music.
2	Faculty of Law (a) Evening Law Centre No. I (b) Campus Law Centre	(One Professor (Temporary) i. Two Readers (one of which is Temporary but likely to continue). ii. Two Lecturers (one of which is Temporary) Two Readers
3	Linguistics	Two Readers
4	Physics & Astro-Physics	i. One Professor Ionospheric Studies ii. One Professor iii. One Professor (Temporary) iv. Readers (Temporary)
5	Political Science	i. One Reader : Politics of Under-developed countries ii. One Reader Indian Government and Administration iii. One Reader
6	Mathematical Statistics	i. One Professor, Multivariate Analysis ii. One Reader Bio-Statistics
7	Operational Research	One Professor
8	History	One Professor (South Delhi Campus)
9	Modern European Languages	One Lecturer in French
10	Non-Collegiate Women's Education Board	One Co-ordinator
11	Computer Centre	i. One Sr. Programmer (Temporary) ii. Three Jr. Programmers (Two Temporary) iii. Two Console Operators (One each reserved for Scheduled Caste and Ex-serviceman)
12	Geology	i. One Sr. Technical Assistant (Artist-cum-Photographer) ii. One Section Cutter iii. One Sr. Laboratory Assistant.

NOTE —The posts at Serial Number 4 (i) & (ii), 5 (i) & (ii) 6 (i) & (ii) 7 and 12 (i) & (ii) have been sanctioned for the duration of 5th, Five-Year Plan.

The scales of pay of the posts are :

1	Professor & Co-ordinator	Rs. 1500—60—1800—100—2000—125/2-2500
2	Reader	Rs. 1200—50—1300—60—1900.
3	Lecturer	Rs. 700—40—1100—50—1600
4	Sr. Programmer	Rs. 1100—50—1600.
5	Jr. Programmer	Rs. 700—40—900—EB—40—1100—50—1300.
6	Console Operator	Rs. 550—25—750—EB—30—900.
7	Sr. Technical Assistant (Artist-cum-Photographer)	Rs. 550—25—750—EB—30—900.
8	Section Cutter	Rs. 330—10—380—EB—12—500—EB—15—560
9	Sr. Lab Assistant	Rs. 380—12—500—EB—15—560.

All posts carry D.A., C.C.A. and H.R.A. as admissible under the rules in force in the University from time to time.

1. ESSENTIAL QUALIFICATIONS FOR :

1. Professorships :

A Scholar of eminence. Independent published work of high standard and experience of teaching Post-Graduate classes and guiding research for a considerable period desirable.

2. Readership :

Good academic record with first or high Second Class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work. Independent published work (in addition to the published work mentioned above) with at the least 5 years' teaching experience in Honours/Post-Graduate classes essential.

3. Lectureships (excepting for posts in the Faculty of Law) :

Essential :

Consistently good academic record with a first or high Second Class (B+) Master's Degree or an equivalent Degree of a foreign University in the subject concerned.

Desirable (in order of preference) :

i. A Doctor's Degree or Evidence of research work of equivalent standard in the subject concerned.

ii Teaching experience of Degree/Post-Graduate Classes.

Provided that if a teacher is not a Ph. D. at the time of his/her appointment and does not qualify himself herself for the award of a Ph. D. Degree from a recognised University in the subject which is being taught by him/her within the period of five years from the date of his/her appointment or does not give evidence of research work of equal standards within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of five years till such time he/she fulfils the above mentioned requirements.

4. Lectureships (in the Faculty of Law)

Good academic record with a first or high Second Class Master's Degree or an equivalent degree of a foreign University in the subject concerned.

5. Co-ordinator (Non-Collegiate Women's Education Board)

(i) Good academic record with a first or high Second Class Master's Degree with Doctor's Degree or equivalent published work and teaching experience of Degree Classes of not less than 10 years ;

OR

(ii) Good academic record with a first or high Second Class Master's Degree with teaching experience of Degree Classes of not less than 15 years

6. Senior Programmer:

(a) At least a Second Class (not less than 50% marks in the aggregate) Master's Degree in Mathematics, Statistics, Econometrics, Operations Research or Physics, or at least a Second Class (Not less than 50% marks in the aggregate) Bachelor's Degree in Engineering from a recognised institution; and

(b) (i) At least five years' experience in Computer Programming at a recognised institution and (ii) Knowledge of at least one of the high level languages like Fortran, Cobol, Algol, PL I, and extensive experience of developing programmes for complex problems.

OR

(b) A Ph.D. Degree from a recognised institution in computer related disciplines like systems Programming, Numerical Analysis, Artificial Intelligence, Theory of Computability, and Theory of Formal Languages

7. Junior Programmer:

(a) At least a Second Class (not less than 50% marks in the aggregate) Master's Degree in Mathematics, Statistics, Econometrics Operations Research or Physics or at least a Second Class (not less than 50% marks in the aggregate) Bachelor's Degree in Engineering from a recognised institution; and

(b) (i) At least two years' experience in Computer programming of a recognised institution.

(ii) Knowledge of one of the high level languages like Fortran, Cobol, Algol, PL I

8. Console Operators

(a) At least a Second Class (not less than 50% marks in the aggregate) Master's Degree in Mathematics, Statistics, Econometrics, Operations Research or Physics;

OR

At least a Second Class (not less than 50% marks in the aggregate) Bachelor's Degree in Engineering from a recognised Institution, and

(b) Familiarity with Console Operation

9. Sr. Technical Assistant (Artist-cum-Photographer)

(i) Diploma in Arts and Photography from a recognised institution. Experience in Microfilming, Reflex Printing, Projection Slide making, reproduction of Scientific Drawings, Charts and Dark Room techniques;

(ii) Some practical experience of photography, developing, printing enlarging, colouring and other processing work

10. Sr. Laboratory Assistant:

Higher Secondary in Science subjects with previous experience

11. Section Cutter:

Experience in techniques of rock and mineral section cutting. Must have a fair knowledge of English alphabets;

II. SPECIAL/DESIRABLE QUALIFICATION FOR:

1. Professorship in Karnatak Music:

Eminence in the field of public performance preferable in Veena. Experience of teaching supported by illustrious pupils and original composition/research work of high standard.

2. Readership in Linguistics:

Specialization and research interest in Experimental Phonetics and Acoustics/Theoretical Linguistics/Generative phonology.

3. Professorships in Physics & Astrophysics:

For (ii) & (iii): Specialization in any of the following areas:

Astrophysics; Electronics, High Energy Physics; Microwaves; Nuclear Physics; Particle Physics; Plasma Physics; Solid State Physics; Spectroscopy; Statistical Physics.

4. Co-ordinator:

Administrative experience in a recognised institution teaching Degree classes or above

5. Readership in Political Science:

A. For the Third Post: Political Theory with specialization in Contemporary Political Theory/Socialist Theory and Practice.

B. Competence in the field of Research Methodology for each of the three posts

6. Professorship in Operational Research: Specialization in Mathematical programming

7. Professorship in History:

Preferably Modern History;

Should be able to handle courses in modern non-Indian History at the M. Phil. and also at the Ph.D. stages

8. Lectureship in French:

ability to speak correct French and experience of teaching French for not less than two years.

9. Senior Programmer

(a) Experience of participation in training programmes in Computer-related disciplines

(b) Intensive experience in systems Programming on Third Generation Computer System

10. Junior Programmer

(a) Experience of participation in training programmes in Computer-related disciplines, and

(b) Knowledge of an assembly language

11. Console Operators:

Knowledge of the elements of Computer Programming

Note:-- In case suitable candidates are not found against the reserved quota, the posts will be filled up from the general quota

12. Sr. Technical Assistant (Artist-cum-Photographer)

Matric. Higher Secondary with Science subjects.

13. Section Cutter,

Middle pass. Should be conversant with techniques of ore-polishing

14. Sr. Laboratory Assistant:

Experience in handling rocks, minerals and fossils collections, Polarizing Microscopes and Surveying Instruments

The prescribed application form can be had from the Information Office of the University either personally or by sending a self-addressed envelope (5" x 11") with postage stamps worth Rs. 2.55

Selected candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Application (separate for each post other than Professorship in Law) accompanied by attested copies of Degrees, other certificates, published research articles, etc. should reach the undersigned not later than 22nd April, 1976. Application for the Professorship in Law should reach not later than 10th April, 1976.

Note: 1 It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation in any of the qualifications may be made in exceptional cases in respect of all posts on the recommendations of the Selection Committee

2 Canvassing in any form by or on behalf of the candidates will disqualify

3 Candidates from outside Delhi for the teaching posts called for interview will be paid Contribution towards travel expenses equivalent to 1½ single Second Class Rail fare

4 Those who had applied in response to the earlier advertisement for the posts of Professors in Karnatak Music, Law (I.L.C.I) and Operational Research and Readers in Law (Campus Law Centre) and Linguistics and Lecturers in Law (Campus Law Centre), need not apply again but in case they have any additional qualifications or information to furnish, they may do so

REGISTRAR

Delhi University, Delhi-110007

SOUTH GUJARAT UNIVERSITY

Surat

Applications for the following Teaching Posts advertised earlier will now be accepted upto 24-4-1976.

Professor:

One each in Sociology, Research Methodology, Rural Studies, Physics, Chemistry, Mathematics, Statistics and two in Business & Industrial Management

Readers:
One each in Public Administration, Economics, Sociology, Chemistry, Mathematics and two each in Physics and Business & Industrial Management

Lecturer:
One each in Public Administration, Economics, Sociology, Mathematics and two each in Physics and Chemistry

Research Associates and Case Analyst:
Five Posts in the Department of Business & Industrial Management.

The pay-scales for the posts have now been revised as under:

Professor: Rs. 1500-60-1800-100-2000-125/2-2500.

Reader: Rs. 1200-50-1300-60-1600-Assessment-60-1900.

Lecturer/Research Associates—Case
Analyst: Rs. 700-40-1100-50-1300-Asses-
ment-50-1600.

Surat
1st April, 1976

G.A. Desai
REGISTRAR

SOUTH GUJARAT UNIVERSITY

Hari Om Ashram Prerit "Shree Chunilal Vajiram Reshamwala Smarak Trust Award"

Applications are invited for "the Hari Om Ashram Prerit Shree Chunilal Vajiram Reshamwala Smarak Trust Award" of the value of Rs. 3,500/-. The award will be given to an Indian, for his/her outstanding and best original research work as judged from his/her printed research publications during the last five years i.e. from January, 1970 to December, 1974 in the field of "Chemistry of Manmade Fibres and Silk Fibres". The award will be decided by an expert committee appointed by the South Gujarat University and the verdict of this Committee will be final.

Four copies of the applications on printed prescribed forms (available from the South Gujarat University, Surat) along with four copies of the printed publications of the candidate should be sent to the Registrar, South Gujarat University, P.B. No. 49, Surat-1 (India) on or before 30th April, 1976.

Copies of printed prescribed application forms and rules and regulations governing this award will be available from the Registrar, South Gujarat University, on payment of Rs. 5/- on or before 15-4-1976.

Dated: 28-2-1976

G.A. Desai
REGISTRAR

AMERICAN STUDIES RESEARCH CENTRE, HYDERABAD

Applications are invited for:

1. LIBRARIAN to administer the largest library in American Studies in Asia. **Qualifications:** Must include postgraduate degrees in library science and in American studies, either the humanities or social sciences, preferably from an American institution. Ph.D. desirable but superior M.A. acceptable. Must have at least five years work in an academic library, and some experience in teaching, editorial work and research. **Special duties:** Advising visiting scholars on research problems and bibliographies. **Age:** Below 40

years. **Grade:** Rs. 1500-60-1800-100-2000 with allowances at Central government rates.

2. ACTING PROGRAMS OFFICER for eight months to perform duties in public relations, to process application and library reference requests, supervise book circulation, make arrangement for conferences, edit some Centre publication, and help advise scholars. **Qualifications:** Training and experience in library work, and a postgraduate degree in an area of American studies, preferably from an American university. A Ph.D. is desirable. **Age:** Below 40 years. **Grade:** Rs 700-40-1100-50-1600.

APPLICATIONS FOR EACH POSITION: Send a typed letter giving details of qualifications to the Director, American Studies Research Centre, Hyderabad-7, to reach the Centre by April 15, 1976.

PANJAB UNIVERSITY

Chandigarh

(Advertisement No. 276)

Applications are invited for the following posts so as to reach the Registrar Panjab University, Chandigarh, by 26th April 1976 along with postal orders for Rs. 7.50 for posts at Sr. Nos. 1 to 23 and Rs. 5.00 for posts at Sr. Nos. 24 and 25.

Posts and Pay Scales:

Professors: Rs. 1500-60-1800-100-2000-125 2-2500

- 1 Professor of Commerce & Business Management — 1
- 2 Professor of Hindi — 1
- 3 Professor of Philosophy — 1
- 4 Director-cum-Professor of physical Education — 1

Readers: Rs. 1200-50-1300-60-1900.

- 5 Organic Chemistry (Temporary) — 1
- 6 Zoology (Permanent—1, Temporary—1) — 2
- 7 Chemical Engineering — 1
- 8 Pharmacology — 1
- 9 Botany — 1
- 10 Education — 1
- 11 Psychology — 1
- 12 Deputy Director of physical Education Rs. 700-50-1250 — 1

Lecturers: Rs. 700-40-1100-50-1600.

- 13 Physics (Permanent—1, Temporary—1) — 2
- 14 Botany — 2
- 15 Chemical Engineering — 2
- 16 Political Science — 1
- 17 Laws — 3
- 18 Educational & Vocational Guidance—1.

- 19 Sanskrit (Research Sections) at VVBIS & IS, Hoshiarpur — 2.
- 20 Assistant Academic Adviser — 1. Rs. 400-40-800-50-950.
- 21 Programme Officer — 1. Rs. 400-40-800-50-950.
- 22 Research Fellow (Statistics Department) — 1. Rs. 450/- p.m. (fixed).
- 23 Research Scholars (Laws—1, Fine Arts — 1, Geography—1, Microbiology—2, Geology—2) — 7 Rs. 400/- p.m. (fixed) each.
- 24 Research Assistant (Chemical Engineering) — 1. Rs. 300-25-600.
- 25 Research Assistant-cum-Demonstrator (Microbiology Department) — 1. Rs. 300-25-600.

Qualifications:

Essential:

(i) A first or high second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the subject with bright academic record.

(ii) Either a research degree of doctoral standard or published research work of high standard in journals of repute.

(iii) About 10 year's experience of teaching post-graduate classes at a University or College level and experience of guiding research.

Desirable (for Professor of Commercial):

(i) The requisite teaching experience should preferably be of M. B. A. Classes:

Or

Ten year's work experience in a responsible managerial capacity:

(ii) Experience in Consultancy:
(iii) Specialisation in Accounting and Finance/Organisational behaviour/Production/Marketing/Business Policy.

(NOTE:—Persons who have held either high teaching position at Indian or foreign Universities and have produced original research or have distinguished themselves as Professional Managers in a senior or middle level position in a business firm of repute would be preferred).

Director-cum-Professor of Physical Education.

Essential:

(i) First class high second class Master's degree in Physical Educational (two year's Integrated course) of an Indian University or an equivalent of a foreign University with bright academic record.

(ii) Either a research degree of doctoral standard or published research work of high standard in journals of repute.

(iii) About 10 year's experience of teaching post-graduate classes at a University or College level and experience of guiding research.

Desirable:

(i) Adequate experience of organising University and Inter-University Tournaments and of conducting coaching camps in different games and sports

(ii) Proficiency in Athletics or a major game of the level of Inter-University participation

Readers:

Essential:

(i) A first or high second class Master's degree of an Indian University or an equivalent qualifications of a foreign University in the relevant subject with bright academic record

(ii) Either a research degree of doctoral standard or published research work of high standard in the subject concerned in journals of repute

(iii) About five year's experience of teaching Post-graduate classes at a University or College level and experience of guiding research

Desirable:

(i) Specialisation for Reader in Zoology: Animal physiology, Histochemistry, Cytogenetics, Systematics

(ii) Specialisation for Reader in Psychology: Psychometrics

(iii) Specialisation for Reader in Chemical Engineering: Transfer Processes, Process Engineering, Plant Design, Process Dynamics and Control Systems Engineering, Mathematical Modelling, Petroleum Processing Engineering, Biochemical Engineering, Environmental Engineering or any other Inter-disciplinary area in Chemical Engineering

Deputy Director of Physical Education

Essential:

(i) First or high second class Master's degree in Physical Education (two year's integrated course) of an Indian University or an equivalent qualification of a foreign University

(ii) About five year's experience of teaching Physical Education/Organising Physical Education Programmes in a College/University.

Desirable:

(i) Doctoral degree in Physical Education.

(ii) Specialisation in Athletics and/or one major game with efficiency in coaching.

(iii) At least University representation in Athletics or any game

Lecturers:

Essential:

(a) A Doctoral degree or published work of an equally high standard; and

(b) Consistently good academic record with first or high second class (B plus) Master's degree in a relevant subject or an equivalent degree of a foreign University.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctoral degree or equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record (due weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed on the condition that he will have to obtain a Doctoral degree or give evidence of published work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements

NOTE:—For one of the posts of Lecturers in Botany, candidates with Master's degree in Botany, or Bio-Sciences or Agriculture with specialisation in Plant Physiology as evidenced by published work or an equivalent qualification of foreign University would be eligible to apply

Desirable:

Specialisations for:

(i) Lecturers in Physics.

(a) Theoretical Physics (Nuclear, Particle or Solid State).

(b) Experimental Physics (Mass-spectrometry, Ultra-high-vacuum spectroscopy, or Solid State Physics)

(ii) A Lecturer in Botany Plant Physiology.

(iii) Lecturer in Political Science, Political Development, Political Analysis, Comparative Politics

(iv) Lecturers in Sanskrit at VVBIS & IS, Hoshiarpur

(a) Specialisation in Veda and Vya-karna

(b) Good knowledge of English

(c) Five year's experience in collaborative research or Lexicographical work.

(d) Knowledge of more than one Indian and foreign language besides Hindi.

Assistant Academic Adviser:

Essential:

(a) A high second class Master's degree in any of the social sciences

(b) Experience as Student Advisor.

(c) Experience in conducting adult/continuing education programme.

(d) General administrative experience.

Desirable:

A first-hand knowledge of foreign University.

Programme Officer:

(i) A Post-Graduate degree preferably in Commerce or Business Administration with not less than 50% marks in the aggregate, and.

(ii) At least two year's experience in academic administration at the executive level or in a business house as an Executive.

Research Fellow:

A first class Master's degree in Statistics or Mathematics with aptitude for advanced study and research (Those who have appeared for the final examination for the Master's degree may apply in anticipation of the result of the examination).

Research Scholars:

First or high second class Master's degree in the subject concerned with aptitude for research. For Research Scholar in Fine Arts, candidates should hold Master's degree in History of Art with good academic record and some research experience

Research Assistant (Chemical Engineering):

Essential:

First or high second class Master's degree in Chemical Engineering

Desirable:

Teaching or practical experience in R & D Organisations or Industry

Research Assistant-cum-Demonstrator (Microbiology Department)

(i) A first or high second class M.Sc. degree in Microbiology or allied biological sciences.

(ii) Teaching or research experience in the line of specialisation.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date will not be entertained. Serving employees may, however, send their applications on the prescribed proformas direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of a No Objection Certificate from their employers. Canvassing in any form will disqualify a candidate.

Application forms can be obtained from the office of the Finance & Development officer, Panjab University, Chandigarh by making a written request accompanied with self-addressed stamped envelope of 23x10 cms.

THE UNIVERSITY OF KASHMIR
Advertisement Notice

Applications (seven copies) to reach the undersigned by 30th April, 1976 are invited for the following posts:

Post	Grade (likely to be revised)
1. Readers in Persian (Temporary), Physics, Mathematics and Law	Rs 700-50-1250.
2. Lecturers in Zoology, Education, Persian, Hindi and Urdu	Rs. 400-40-800-EB-50-950

In addition to the usual qualifications the following will be special requirements:

- | | |
|--------------------------|---|
| 1. Reader in Physics | Must have specialized in experimental Physics in the area of solid State (Semi-conductor) electronics with experience of supervising research in the field. |
| 2. Reader in Mathematics | Sufficient competence of teaching Topology and Functional Analysis or complex or Differential Geometry |
| 3. Reader in Law | Must have specialised either in Muslim Law or Law of Taxation. |
| 4. Lecturer in Zoology | Specialization in Animal Physiology or Cytology or Cytogenetics |
| 5. Lecturer in Education | (1) M.Ed.
(2) M.A. in any of the Social Sciences:
(3) Specialization in the Current Problems of Education; and
(4) At least five years teaching experience at College level. |
| 6. Lecturer in Persian | Should have good knowledge of Modern Persian |

For details and application forms please apply sending crossed Postal Order for Rs. 6/- (cashable at the Srinagar Post Office) in favour of the Registrar, University of Kashmir, Srinagar-190006

While making a request for the application forms, the candidate is advised in his own interest to send his detailed curriculum vitae to the undersigned on a plain paper

Sd
(Saif-ud-Din Soz)
REGISTRAR

NORTH-EASTERN HILL UNIVERSITY
Lower Lachumiere, Shillong
No. F.I-2, Estt 75

Dated the 12th March, 1976

Applications are invited from suitable candidates for the following positions in the North-Eastern Hill University

For Lecturer:

Essential:

1. A consistently good academic record with a first class or high second class (B+) Master's degree of an Indian University or an equivalent degree of a Foreign University
2. A Doctor's degree or published work of an equally high standard

Name of the Post	Number of Post	Scale of Pay
1. Reader in Economics	1	Rs 1200-50-1300-60-1900.
2. Lecturer in Economics	2	Rs 700-40-1100-50-1600.
3. Editor	1	Rs. 700-40-1100-50-1300.

Qualifications: For Reader:
Essential:

1. A first or high second class Master's Degree of an Indian University or an equivalent qualification.
2. A scholar of standing in his field, with a doctor's degree or published work of equivalent standard.
3. At least five years' experience of Post-Graduate teaching and/or research work.
4. Ability to interact with other disciplines.

Provided that any of the above-mentioned qualifications may be relaxed in favour of persons of high academic or professional distinction.

3. Ability to interact with other disciplines

Preferable:

Some experience of teaching post-graduate classes.
Provided that if a candidate possessing a Doctor's degree or equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record may be appointed on the condition that he will have to obtain a Doctor's degree or give evidence of published work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements

Provided further that in the case of candidates belonging to scheduled caste/tribe from within the jurisdiction of the University, the Selection Committee may give preference to such candidates if they possess more or less the same qualifications and/or have undergone special training for appointment to such posts at the initiative of the university to make it equivalent to prescribed qualifications.

Candidates with special qualifications and with sufficient experience if selected, may be given a higher initial pay in the scale.

Fields of Specialization required:

Statistic and Econometrics, Economic Theory, Agricultural Economics or Regional Economics.

For Editor:

A Bachelor's degree at least second class Experience:

Five Years' experience of editing and magazine production in any Government, quasi-government or private organisation. Candidates should submit specimens of their published-written/editorial work along with their applications. A degree or diploma in journalism will be treated as an added qualification.

Job Requirements:

In addition to editing and producing the University's monthly news bulletin Drum-beats, he will be responsible for similar and allied publications of the University. He should be fully conversant with printing detail, layout and design of the magazine, including knowledge of printing types. He will be required initially to correct proofs, if necessary. He should be a dynamic person, capable of liaison work with the press, well informed, imaginative and with an excellent command over the English language.

Candidates who have already applied in response to an earlier advertisement need not apply.

Applications in the prescribed form obtainable from the office of the undersigned should reach him on or before the 15th May, 1976 together with an Indian Postal Order for Rs 500 (Rs 2.50 for Scheduled Castes and Scheduled Tribe candidates) made out in favour of the "North-Eastern Hill University, Shillong" in payment of an Application fee.

Note:

1. Persons in service should submit their applications through their employers.
2. Candidates called for interview will have to appear before the Selection Committee at the Office of the North-Eastern Hill University or at any place specified. The rate of travel allowance permitted by Central Universities will apply.
3. All appointments will be subject to a period of probation.
4. This post is open to all citizens of India who satisfy the required qualifications but some preference may be given to equally qualified candidates from areas within the jurisdiction of the University.

T.K. Tochhawng
Officer on Special Duty
(Administration)
North-Eastern Hill University

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Appalanarasimham, Vedula. Magnetic symmetry and its extension. Andhra University.
2. Bhattacharyya, Dilipkumar. On certain problems in more dimensional operational calculus. University of Calcutta.
3. Dwivedi, S.P. Certain classes of univalent functions and generalizations of functions with bounded boundary rotations. I.I.T., Kanpur.
4. Gupta, Ashok Kumar. Algebras of functions with Fourier transforms in L.p. I.I.T., Kanpur.
5. Jain, Suresh Chand. Some optimization problems of aerospace system. University of Delhi.
6. Kandya, A.K. On the axial Engen-functions of the biharmonic equation and its applications. I.I.T., Bombay.
7. Kundu, Naha Kumar. Certain investigations on symmetric derivatives of real functions. University of Burdwan.
8. Mohanti, P.K. Finite element analysis of some problems in mathematical physics. I.I.T., Bombay.
9. Manju Lata. Theoretical studies in mathematical programming. University of Delhi.
10. Mittal, Dharam Paul. A study of non-additive measures of entropy and relative information. University of Delhi.
11. Ramaswamy, Revati. Overing properties of G-domains and G-rings. I.I.T., Kanpur.
12. Rege, M.B. Some problems in algebra-cancellation of Azumaya algebras and structure of ideal algebras. University of Bombay.
13. Samantaray, U.N. Some aspects of the absolute summability methods and their applications. Berhampur University.
14. Subhash Chander. Commutators of operators on Hilbert space. University of Delhi.

Statistics

1. Goel, Brahm Swarup. On design and analysis of experiment with mixtures. Meerut University.
2. Lakshminarasimham, V. Some contribution to simplified estimation of mean and standard deviation of normal distribution and by order statistics. Sri Venkateswara University.
3. Padam Singh. A new approach to systematic sampling. University of Delhi.

Physics

1. Ananth, A.G. Time variation of cosmic ray intensity. Gujarat University.
2. Arya, Karamjeet. Microscopic electronic fields and nonlinear optical response functions in crystals. University of Bombay.
3. Bagri, D.S. High resolution interferometric observations of radio sources at 327 MH. University of Bombay.
4. Bhaduri, Debabrata. Crystal structure of biologically important compounds. University of Calcutta.
5. Chakrabarty, Jayantimala. Electromagnetic fields in general relatively with reference to charged matter. University of Gauhati.

6. Devendra Kumar. Microwave collision broadening studies of C_2F_2 and CH_3Br and temperature dependence of line widths. University of Delhi.

7. Jhanwar, Basanti Lal. Scattering of electron by atomic and molecular systems and its applications. Meerut University.

8. Kapil, S.K. Critical constants and equation of state for uranium dioxide. University of Bombay.

9. Kathuria, Shiv Narain. Interfacial and contraststreaming instabilities of hydromagnetic fluids. University of Delhi.

10. Kulkarni, Rajendra Hansraj. Domain formation in KN_2O_3 single crystals. Nagpur University.

11. Madhavan, D. SRS and plasma studies using ruby laser. I.I.T., Kanpur.

12. Majumdar, Manjusi. Studies on 14 MeV neutron interaction—fast neutron capture cross sections. University of Calcutta.

13. Mallikharjuna Swamy, Kodavanti. Ultrasonic studies in liquids and binary liquid mixtures. Andhra University.

14. Radhey Shyam. Study of scattering mechanism in CdS and GaSb by Galvanomagnetic effects. University of Delhi.

15. Rangarajan, S. Interface exciton modes and superconductivity of a metal in a contact with a semiconductor. University of Bombay.

16. Sankara Rao, Kota Siva. Studies on the photoelectric effect around the K edge in Zr, Ag, Ta, and Th. Andhra University.

17. Santosh Kumar. X-Ray spectroscopic studies on second transition series metals and some of their compounds. University of Delhi.

18. Savithry, Thekkethil. Studies in high resolution spectra of some diatomic molecules. Andhra University.

19. Shankar, M.B. Studies in molecular spectra OH (O-O band, $\gamma \rightarrow 2\pi$) abnormal rotational energy distribution in 2π -State. Karnatak University.

20. Sharma, Dinesh Kumar. Studies in molecular constants from spectral data. Meerut University.

21. Sharma, Gajadhar Prasad. A study of ionization due to high energy radiations in photographic emulsions. Meerut University.

22. Shri Pal Singh. Interaction of acoustic waves with conduction electrons in semiconductors. I.I.T., Delhi.

23. Subramanian, P.R. Nuclear spin orientation and muon capture by complex nuclei. University of Madras.

24. Thyagarajan, K. Guided propagation and lens action in graded index media. I.I.T., Delhi.

25. Venkata Reddy, B.C. Studies on the electronic spectra of some first group transition metal ions in certain inorganic crystals. Sri Venkateswara University.

26. Verma, R.P. Study of multiple charged cosmic rays with a magnetic spectrograph. University of Bombay.

Chemistry

1. Bhattacharyya, Manju. Studies on the chemistry of naturally occurring cyclic compounds. University of Calcutta.

2. Chakravarty, Kamal Kumar. Synthetic studies in polycyclic systems. Visva-Bharti.

3. Chaudhury, Pares Chandra. Studies on some organic heterocyclic compounds as ligands. University of Calcutta.

4. Datta, Pradip Kumar. Studies on the physico-chemical effect of addition of lake/pond sediments on soils. University of Calcutta.

5. Gopalan, B. Studies in molecular rearrangements. University of Madras.

6. Gupta, Raj Kumar. Synthetic studies on new oral hypoglycemics. Meerut University.

7. Mahajan, A.P. Studies in tetralones and hydronaphth-acenes. University of Bombay.

8. Mahajan, Anna Santosbrao. Studies in synthetic and structural chemistry of certain 5/6 membered nitrogen, sulphur/oxygen containing heterocyclic compounds. Nagpur University.

9. Mathur, Anil Kumar. A study of phenylation and related processes with some phenolic ketones. University of Delhi.

10. Mathur, Anil Kumar. Studies on phospholipids of myco-bacteria. University of Delhi.

11. Mehrotra, Ashok Kumar. Novel practical and stereo-specific route to prostaglandins. I.I.T., Kanpur.

12. Nanda, R.K. Configurations of biologically important molecules. University of Bombay.

13. Panda, Syamal Kanti. Studies on the Chemistry of plant products. University of Calcutta.

14. Pathare, P.P. Studies in oxygen heterocycles. I.I.T., Bombay.

15. Ponde, R.K. Structural thermal and electrical properties of some bismuth and antimony oxide systems. I.I.T., Bombay.

16. Ramani, Narayan. Synthesis and pharmacology of compounds having potential biological activity. University of Bombay.

17. Sen, Rajani. Natural products and their reactions. University of Calcutta.

18. Shah, B.K. Chemical investigation of the heartwood of *Pterocarpus marsupium* (Roxb). Gujarat University.

19. Sharma, B.V. Studies in sulfochlorinated polyethylene. University of Bombay.

20. Sharma, Brijesh Kishore. Mechanism of oxidations by tertiary butyl-hypochlorite. Meerut University.

21. Sharma, Narain Dev. Studies on structure and biosynthesis of triglycerides of mould-fungus *Aspergillus nidulans*. Meerut University.

22. Sharma, Om Prakash. Studies on some azodyes and their metal complexes in solution. Nagpur University.

23. Sharma, Padma Kant. Physico-chemical studies complexes formed between metals and unsymmetrical derivatives of substituted thioureas containing heterocyclic rings. Meerut University.

24. Sharma, Pushpa. A study of new flavonoid components of the leaves of *Pongamia glabra*. University of Delhi.

25. Subbayan, M. Separation of valences of some p-block elements by circular paper chromatography and ring-oven techniques. University of Madras.

26. Suguna, H. Studies on isoquinoline alkaloids. University of Madras.

27. Thareja, Santosh Kumari. Kinetics of the degradation of tetraphosphates. University of Delhi.

28. Tyagi, Brahm Dutt. Kinetics and mechanism of oxidation of aromatic carboxylic acids and related compounds by peroxydisulphate ion. Meerut University.

29. Vijendra Singh. Physico-chemical studies on the interaction of Schiff's bases with transition metal. Meerut University.

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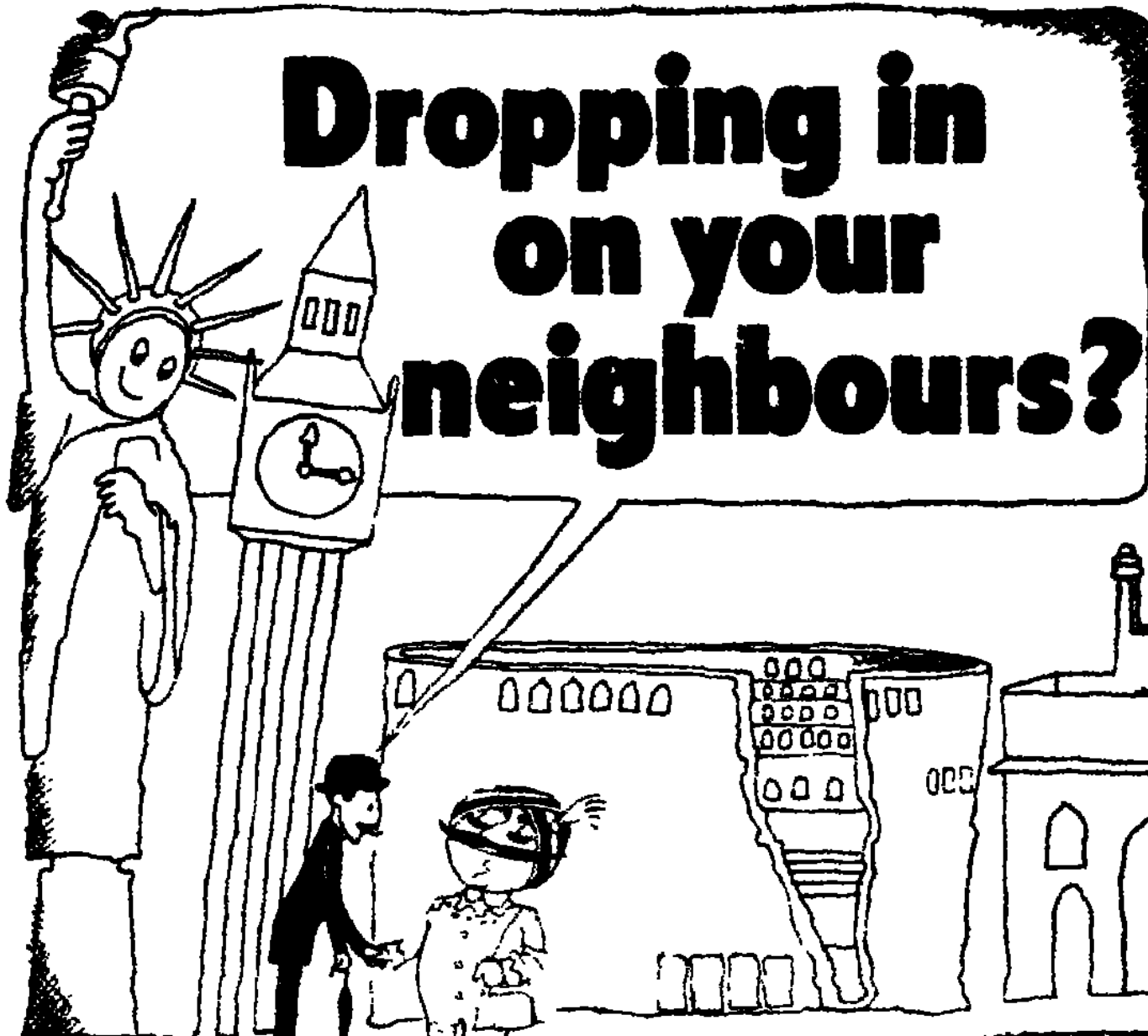
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Dr. (Mrs) F. Nora Lyngdoh, Director, Pasteur Institute, Shillong, addressing a section of audience in a Panel Discussion on "Diet and Disease" organised by the NEHU

- New Orissa Statutes
- ● Convention of National Teachers Forum
- ● ● Technical Education Conference

CLASSIFIED ADVERTISEMENTS

MADURAI UNIVERSITY

Applications in the prescribed form are invited for the following posts in the University Departments and in the Institute of Correspondence Course and Continuing Education.

No.	Name of the Post	No. of Posts
DEPARTMENTS		
1.	Professor of Animal Physiology	One
2.	Professor of Microbiology	One
3.	Professor of Ancient History	One
4.	Reader in Medieval History	One
5.	Reader in Library Science	One
6.	Lecturer in Medieval History	One
7.	Lecturers in Modern History	Two
8.	Lecturer in Organic Chemistry	One
9.	Lecturer in Physical Chemistry	One
Institute of Correspondence Course & Continuing Education		
1.	Professor of History	One
2.	Lecturer in History	One

Scale of Pay : Professor : Rs. 1100-50-1300-60-1600
Reader : Rs. 700-50-1250
Lecturer : Rs. 400-40-800-50-950

The applicants should possess high academic qualifications with experience of research work and Post-graduate teaching.

Those who have responded to the previous advertisement for the posts in History need not again apply.

The prescribed form of application and full details regarding qualifications, field of specialisation and experience required can be got from the undersigned on requisition accompanied by (1) a self-addressed envelope with postage stamps to the value of 0.55 p affixed thereon and (2) a State Bank of India Chalan for Rs. 5/- payable at Madurai drawn in favour of Registrar, Madurai University, Madurai-625021. The last date for receipt of application is 20-5-1976.

Palkalai Nagar, B. MURUGAN
MADURAI-625021. REGISTRAR.
Dt. 13th April, 1976.

UNIVERSITY OF INDORE INDORE

University House,
Indore : 452001

No. Est/III (2)/76

Dated : 14th April, 76

ADVERTISEMENT

Applications are invited for the post of "PROFESSOR" (Pay-scale Rs. 1100-50-1300-60-1600) in the University Teaching Department of Education.

2. QUALIFICATIONS :—

- (a) A first or second class Master's degree of an Indian University or an equivalent qualification of a

foreign University in the subject concerned.

(b) Either a degree of the Doctorate standard or published work of high standard.

(c) Not less than 10 years experience of post-graduate teaching and experience of successfully guiding research (Details must be given).

In the case of a candidate of exceptional merit the Executive Council may, on the recommendations of the Selection Committee and with the prior approval of the Kuladhipati, relax any of the qualifications mentioned in (a), (b) & (c) above.

3. The above pay scale is likely to be revised. Dearness Allowance as well as the benefit of Contributory Provident Fund in accordance with the rules of the University is also available. A higher start can be given to deserving candidates.

4. Applications should be made on a plain paper giving name, date of birth, particulars of academic career (from High School onwards with attested copies of marks statement), experience, published research work etc. alongwith a crossed Indian Postal order of Rs. 10/- marked 'Payable to Registrar, University of Indore, Indore-1'. Applications should reach the undersigned not later than the 15th May, 1976. The envelope should be marked "Application for the post of Professor in Education".

5. Candidates already in service should apply through proper channel. Candidates selected for interview will be required to travel at their own expenses.

6. The University reserves the right to fill-up or not to fill-up the post advertised and/or to call only selected candidates for interview.

(A. G. Sharma)
REGISTRAR

UNIVERSITY OF JAMMU NOTICE

Applications on prescribed forms are invited for the following posts to reach the undersigned on or before May 25 1976 :

1. Professor of Education Rs. 1100-1600 (one post)
2. Readers one each in Rs. 700-1250
(a) English (Drama)
(b) Electronics
3. Lecturer in Rs. 400-950
(a) Electronics (one post)
(b) Laws (two posts)
4. Fellow in Dogri (Historical and descriptive linguistics. -do-one post)
5. Workshop Superintendent Rs. 475-850 (one post)

For full details and prescribed application forms please apply by sending a self addressed envelope of 25cms X10cms size bearing stamps worth Rs. 1.50 paise alongwith a crossed postal order for Rs. 1/- drawn in favour of the Registrar, University of Jammu Canal Road, Jammu (Tawi)-180001, Jammu & Kashmir State, cashable at Jammu post office

(K. K. GUPTA)
REGISTRAR

PANJAB UNIVERSITY (CHANDIGARH)

(Advertisement No. 3, 76)

Applications are invited for the following research positions at the Centre for Advanced Study in Mathematics and the Department of Mathematics, Panjab University :

Centre	No. of positions
Junior Research Fellowships (Rs. 400/- p.m. (fixed) in the first two years; Rs. 500/- p.m. (fixed) during the next two years if progress found satisfactory).	6
Senior Research Fellowship (Rs. 600/- p.m. (fixed))	1
Department Research Scholars (Rs. 400/- p.m. (fixed))	2

Candidate with good academic record need only apply. Persons who have appeared for M.A./M.Sc. this year and are awaiting the declaration of the result may also apply.

Only one application will make the applicant eligible to be considered for all the positions, except that of Senior Research Fellow, for which the minimum requirement is a Ph. D. or evidence of published research work.

Applications on the prescribed form available from the office of the Finance & Development Officer, Panjab University, Chandigarh should reach the Registrar, Panjab University, Chandigarh, by June 15, 1976, along with postal orders for Rs. 7.50.

UNIVERSITY NEWS

Vol. XIV

MAY

No. 5

1976

*A Monthly Chronicle of
Higher Education*

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*Opinions expressed in the articles
and reviews are individual and do
not necessarily reflect the policies
of the Association.*

Editor: ANJNI KUMAR

Technological Innovations

The Birla Institute of Technology, Ranchi has developed programmes of training entrepreneurs on a scientific basis. Its teachers have got actively involved in the surrounding industries and there is a continuous two-way flow between industry and the institute. Professors in the Institute identify live projects in industry and put the entrepreneurs on the job of developing them. Necessary technical and scientific help is given to them. The projects are then examined and tested by industry and, when approved, necessary loans on a hundred per cent basis are given by the United Commercial Bank. In the first phase the entrepreneurs are permitted to work in the space available in the Institute itself. Last year the entrepreneurs completed projects worth Rs. one crore. This year they are expected to go up to 2 crores. The Bihar Government has now sanctioned Rs. 10 lakhs for building twenty entrepreneur sheds on the campus site. The Bihar Government has also sanctioned Rs. 92,000 for giving regular organised training to 50 entrepreneurs for a period of four months. They were selected from 300 applicants. Each entrepreneur is given a stipend of Rs. 400/- p.m., lives on the campus and is given a live project from an industry. In addition he is given lectures on taxation, finance, marketing and management. It is expected that in four months each one of them will develop a project to the point where the industry will get interested in them.

The Institute has again initiated on a regular basis part-time courses for working engineers in the surrounding industries. These engineers attend courses in the evening, do laboratory work in the Institute and take up a live project for their theses in their respective industries. They can get a certificate in one year; Diploma in two years and Degree in three years. This is perhaps the first experiment in continuous education for brilliant young engineers who joined industry soon after taking their degree but did not go for any advanced research and training. These courses will also help to prevent the brain drain. First class engineers can now get acquainted with modern research and development, methods and techniques in these evening courses.

The Institute has also developed the cultivation and distillation of medicinal plants and their use in drugs. The Bihar Government has agreed to the setting up of an industrial-cum-agricultural complex and an indigenous medicine complex in the campus. It is also proposed to develop a medico-engineering complex in collaboration with Rajendra Prasad Medical College in Ranchi. The Institute has developed inter disciplinary programmes which cut across many traditional disciplines like engineering, science, medicine, Industrial training, etc. Such a variety of interdisciplinary programmes hardly exist in any other institute in the country. It will be a welcome step if the Institute which is already autonomous is given the necessary impulse to forge ahead and give its own degrees.

New Pattern of Education

A Case for four Year Integrated Undergraduate & Post-graduate Course

M. R. Apparow

The Higher Education in India today is facing a serious crisis of proliferation of degree colleges far beyond the capacity of the Governments and the universities to cope with the financial aid they demand and the academic responsibilities they involve. The universities have a clear responsibility of ensuring and developing the academic standards of the colleges affiliated to them. The number of colleges affiliated to the universities are increasing so rapidly that the universities are finding it difficult to discharge their obligations. The University Grants Commission's prescriptions to this malady range from the creation of the unitary universities to the granting of autonomous status to the degree colleges. These prescriptions are not enough to solve the problems created by the proliferation of affiliated colleges. It requires not a piecemeal approach but a thorough reorganisation of the entire gamut of higher education. The basic assumption that should guide us is that the universities can never abdicate their responsibility towards the colleges. It is methodologically inappropriate to treat the undergraduate education as something distinct from that of postgraduate education because the postgraduate education is an extension of undergraduate education and they are discipline centred. If we look at the realities, we find that postgraduate degrees have no purpose except in terms of teaching particular subject in a little more detail. For all practical purposes degree qualification is what counts as a minimum qualification. If we are offering a postgraduate course (as it is) it is with a view to make good to some extent the falling standards at the graduate level. So the solution lies not in expanding the postgraduate courses but in upgrading the standards of the undergraduate education.

There are many strategies that can be thought of to improve the standards of undergraduate education. But most of the strategies that we are now thinking of such as restricting the enrolment, improving the teacher student ratios, upgrading the syllabus, equipping the libraries and laboratories etc. are not satisfactorily workable as experience shows. A number of factors, social and political, demand the establishment of new colleges but paucity of resources, low motivation and commitment are some of the important constraints to the implementation of the above programmes. So we should think of a more realistic measure. The one measure that can be considered

in this connection is to integrate undergraduate and postgraduate education into one level and the duration of such a course be made four years. In fact, through this measure, we are reducing the period by one year in the present system of 3 + 2. This measure may in all probability discourage a significant proportion of students especially those who don't have aptitude for higher education, seeking admission into a course of four year duration after two years of inter. This kind of integrated syllabus may be so designed as to avoid a lot of duplication in each succeeding years. Thus we will not be reducing the content by cutting down the period from five to four years. Again if we look into the present trend of granting postgraduate courses to the ever growing degree colleges, a solution like this appears to be a good strategy. The curriculum we follow at this level of higher education may be like this

In the first three years of the graduate programme the students will be initiated into the entire scope of a discipline. After three years of this course they have to offer a specialised course of one year duration within that discipline. Such a degree will be certainly better than the degrees that we are granting now and will not be inferior to the master's degrees that we are conferring at present. In the context of the explosion of knowledge in almost all the disciplines today the present M.A., M.Sc., programmes that we are offering cannot be called specialisations. Since we seek to teach them almost all branches of a discipline the master's degrees today can only be taken as general degrees but not degrees in specialisation. Thus this new system of 4 solves not only the problems of the undergraduate education but also that of postgraduate education. We can also conceive of M.Phil. or M.Litt., programme of one year duration after the completion of these four years' course and certainly it could also lead to a doctoral programme of 2 to 3 years duration. Alternatively as an adaptation of this system we can think of the possibility of converting the present universities as the centres which offer only M.Phil. and Doctoral programmes and thus make them the centres of research. In any case there is already a trend, developing in this direction. JNU is one such example and many universities are making a claim for such a programme and institutional set up. This we can afford to do at the national scale only when we ensure 4 years integrated graduate programme at the college level. The present

(Contd. on page 30)

The author is Vice-Chancellor, Andhra University.

APPOINTMENT OF THE FACULTY

R.P. Puri

Action on the resolutions of the Executive Council is normally initiated soon after these have been approved by Chairman, but matters of urgent nature can however be attended to even before the minutes are finalized. One such urgent matter could be the recommendations of selection committees respecting the appointment of teachers. The minutes relating to such items should be approved by the Chairman before these are implemented. Sometimes when the Executive Council is not likely to meet in the near future, its approval to the recommendations of the selection committee is obtained by circulation, if the persons selected are required to be in their respective positions urgently.

Letter of offer

After the Executive Council of the university has approved the recommendations of the selection committees, including the basic salary to be offered to the selected candidate, letter of appointment is prepared. It should contain all the requisite details, such as the designation of the post, the name of Faculty and Department, the scale of pay and basic salary offered (it may be desirable to specify the amount of the allowances permissible), the alternative schemes of retirement benefits, the requirement of medical fitness certificate, the tenure of the post: whether permanent or temporary (in the latter case the period should be specified) etc. The fact that other terms and conditions of service of the incumbent concerned shall be governed by the relevant ordinance should be stated in the offer letter. His personal file containing copies of the following documents, may be opened :

- (i) Advertisement;
- (ii) Application form (if for some reason the applicant has submitted his application on plain paper, he should be asked on his joining the university to fill up the prescribed application form);
- (iii) Minutes of the selection committee;
- (iv) Curriculum vitae circulated to the members of the selection committee; and
- (v) Resolution of the Executive Council approving the appointment of the faculty member.

On receipt of the joining report, an office order should be issued containing the name of the appointee, his department and faculty, his salary and scale of pay and his date of appointment. It should also carry a mention that other terms and conditions will be governed by the ordinance relating to the terms and conditions of whole-time teachers. Apart from the conditions laid down in the said ordinance, the order should also contain a stipulation that the teacher will comply with ordinances, rules and regulations (that may be laid down by the university from time to time) as well as the code of conduct for teachers, when framed. Copies of such orders need be forwarded only to the Finance Branch, apart from the appointee. For the information of other officials/branches, a circular should be issued showing his Faculty/Department, his designation and date of joining.

Service contract

Soon after joining the university, each faculty member is required to sign a contract of service (which is approved by the Executive Council). After it has been signed by the Registrar, who is authorised to sign such contracts on behalf of the university, it should be kept in safe custody. The schedule attached to the agreement must be kept up to date with reference to the changes that may occur in the status/salary of the faculty member from time to time. The fact that the teacher has signed the agreement should be recorded in his Service Book. All such agreements ought to be entered in a separate register, and at the end of each year entries made in the register should be attested and a certificate recorded that the agreements are intact.

Medical Examination

Each faculty member after his appointment, has to get himself medically examined at the earliest possible opportunity. If the university has to arrange for such a medical examination, he shall be requested to appear before the Medical Board for the purpose. The fact of his having been medically found fit should be recorded in his service book. If declared unfit temporarily, he must appear before the Medical Board or any other medical authority which had examined him earlier at the appropriate interval. The fact of his having been declared unfit must be re-

ported to the University authorities concerned for appropriate consideration.

Service book

Entries in the service book concerning the teacher's qualifications and his age, have to be made with reference to the original certificate/diplomas. The originals received from the teacher should be sent back promptly and carefully, after retaining attested copies thereof. Some teachers do not send in these documents in time and consequently the first page of their service books remains incomplete. Respecting those faculty members who are yet to be confirmed after the specified period, they could be asked to furnish the desired information before a notification confirming them is issued. In other cases, persistent and persuasive efforts need be made to obtain these documents. If still there is no response, the allowing of annual grade increment could be made contingent on the teacher concerned furnishing the required documents. All such cases should, however, be brought to the notice of the Vice-Chancellor/Registrar before it is too late.

Option for retirement benefit schemes

Most of our universities now offer two retirement benefit schemes (at least all Central Universities) to faculty members, namely General Provident Fund-cum-Pension-cum-Gratuity and Contributory Provident Fund-cum-Gratuity Schemes. Each faculty member is required to communicate his option to be exercised by him within a certain specified period for either of the two schemes and, as soon as he has done so, this should be recorded in the Service Book, and then forwarded to the Finance Branch.

Completion of formalities

Instead of issuing separate letters asking a faculty member to complete each of numerous formalities, one communication containing all such requirements should be addressed to him. Some of the documents etc., to be furnished by him in this regard could be:

- (a) Signing of the service contract;
- (b) Medical fitness certificate;
- (c) Original certificates/diplomas, including Matriculation or Higher Secondary certificate showing date of birth;
- (d) Completion of service book;
- (e) Option regarding retirement benefit schemes; and
- (f) Home town declaration.

The completion of these formalities in time needs no emphasis, especially when some of them form part of the terms and conditions of the teacher's appointment. Accordingly, the office must follow up the communications sent to him in this respect so as to keep an alert watch of the progress made in this regard. For this purpose, a register, named 'Formality Completion Register' should be maintained and kept

up to date carrying columns such as (a) Name of the faculty member, (b) Service Agreement, (c) Medical certificate, (d) Original Certificates seen and attested, (e) Service Book, (Option exercised for retirement Benefits, (g) Home Town Declaration etc. Entries made in the register should be reviewed from time to time so that the teacher concerned is constantly re-made in respect of the incompleteness of the formalities.

Annual increment

In order that the annual grade increment is released in time, an increment register should be maintained with such columns. (a) Name, (b) Designation, (c) Faculty/Department, (d) Date of appointment (e) Scale of pay, (f) Present basic salary (g) Record of non-qualifying service, (h) Date of increment, (i) Pay after allowing increment for 1975. (for 1976) and so on. Entries in this register should be made monthwise so that in the first week of each month, a notification concerning drawal of increments is issued. If a teacher has been granted extraordinary leave without the benefit of annual grade increment, his next date of increment will undergo a change. Consequently, his name should appear in the month in which his next increment becomes due. Notification issued concerning extraordinary in the previous month should be reviewed in the following month so that all possible changes in the dates of increment are made in time.

Assessment Report

As a result of the omnifarious activities of our Vice-Chancellors, they hardly have enough time to keep themselves fully posted with the work-load of the faculty members. Moreover, the universities have also failed to maintain systematically an account of teachers' total load. Undoubtedly, a good understanding of the activities of the faculty is essential not only for the efficient working of a college/university, but it is also equally important in assessing the effect of the new changes in higher education. Therefore, some kind of system of self assessment of the faculty members ought to be devised so as to enable them as well as universities to know how they spend their time during semesters, for what purposes and with what results.

It is rather difficult to provide for all categorization of work in the assessment report form, but some beginning made in this direction should enable the university authorities to improve upon its format in due course of time. While the periodicity of the reports could be left to each university, a two-year period seems to be satisfactory. (The same form can also be used in connection with the confirmation of teachers which is normally done at the end of the first year of their service.) The forms duly completed by the incumbents should be forwarded to the Vice-Chancellor alongwith the recommendations/observations of the Head of the Department and the Dean of the Faculty. The assessment report may call for information under headings such as

1. **Name of the Faculty Member**
2. **Faculty**
3. **Department**
4. **Teaching and research load**
 - (a) Titles of the courses taught during the year;
 - (b) Contact hours spent per week with students for teaching, giving research guidance, counselling etc.; and
 - (c) Weekly hours spent on own research work
5. **Publications**
 - (a) **Books**
 - (i) Title
 - (ii) Publisher
 - (iii) Year of Publication
 - (iv) Nature of Reviews of Books
 - (b) **Research Articles**
 - (i) Title
 - (ii) Journal in which published
 - (iii) Number of the issue of the Journal
6. **Research Projects Undertaken**
 - (i) Title of the Project;
 - (ii) Month of commencement;
 - (iii) Whether completed during the year;
 - (iv) If not completed, expected date of completion;
 - (v) Nature of handicaps experienced in carrying out research;
 - (vi) Are you satisfied with the quality of your research ? and
 - (vii) Suggestions to improve it further.
7. **Participation in Extra-curricular activities**
 - (a) Administrative Responsibilities;
 - (b) Extra-Curricular activities of students;
 - (c) Residential life of students
8. **Guidance rendered to research scholar**

<i>No. of M. Phil. students</i>	<i>No. of Ph. D. students</i>
(a) Declared eligible for the Degree during the year (In how many cases, M. Phil. dissertations had to be revised by the students ?)	(a) Declared eligible for the Degree during the year (In how many cases, Ph.D. theses had to be revised by the students ?)
(b) Continuing to receive guidance	(b) Continuing to receive guidance
9. **Participation in seminars/conferences**
 - (a) Subject of the seminar;
 - (b) Venue;
 - (c) Dates;
 - (d) Held under the auspices of;
 - (e) Whether presented a paper (if so, mention title thereof) and/or presided over a session etc.; and
 - (f) Extent of benefit derived from participation
10. **Details of Membership of Committees**
11. **Do you have any suggestions to offer for effecting improvements in**
 - (a) Teaching Techniques;
 - (b) Evaluation methods;
 - (c) Student orientation programmes,
 - (d) Library facilities;
 - (e) Facilities for students;
 - (f) Co-Curricular activities
 - (g) Examination system
 - (h) University administration
 - (i) General standard of students
12. **Did you fail to perform your academic duties such as preparation of lectures/demonstrations, conducting assessment, rendering guidance to students, undertaking invigilation, etc. ?**
13. **Did you commit any partiality in assessing students, or over-marking, under-marking students, or making attempts at victimization on any grounds ?**
14. **Did you incite students against other students, colleagues or administration ?**
15. **Did you raise any questions of caste, creed, religion, race or sex in the case of your dealings with your colleagues and trying to use these considerations for the purpose of improving your prospects ?**
16. **Did you refuse in writing or verbally to carry out the decisions of the authorities of the university and/or its functionaries ?**

The last five items of the foregoing assessment report are based on the code of conduct recommended by the Sen Committee that has been circulated by the University Grants Commission among Universities with the suggestion that the same should be adopted for their faculty members. Discussion on the desirability or otherwise, of adopting a code of conduct by our universities being beyond the scope of this professional note, it should nevertheless be presumed that in one form or another our universities would soon have to frame some document governing the conduct of our teachers. Keeping this in view, it is felt that the purpose the authorities concerned have in mind in persuading the universities to prescribe a

code of conduct for its faculty, would be well served if it is made part of the assessment report. While working in the "temples of learning", searching for the truth, it is unlikely that our faculty members will submit reports which are factually incorrect (so far as these last five items are concerned) because the risk of doing this is fraught with serious consequences including the reputation of the individual going down in the eyes of his colleagues and pupils alike, not to speak of the general public.

The system of conducting teachers' assessment can be useful in still another way. The universities can have an opportunity to initiate, though in a limited manner, their own self-assessment at the end of every two years. Its success will, however, be contingent on our teachers expressing their views on the administrative and academic affairs of universities without any fear of losing or winning the favour of the authorities. A report prepared on the basis of the views so expressed by them should be discussed by a small working group of academicians chosen by the Vice-Chancellor. Its observations, together with the views of the teachers (culled from their reports), should be placed before a joint meeting of the Academic Council and the Executive Council for a threadbare discussion. Unless the universities on their own subject themselves to self-discipline and form the habit of initiating their assessment, they are bound to suffer from the avoidable humiliating criticism from time to time.

Index card

Often need is felt to consult the personal file of a teacher for ascertaining his date of appointment, details of the various positions held by him from time to time, and so on. Some kind of index card (three sets, one for the Vice-Chancellor, another for the Registrar and third one in the section concerned) containing important points of information should, therefore, be prepared and kept handy in a card cabinet. The card may carry such columns as :

1. Name;
2. Date of birth;
3. Marital status;
4. Nationality;
5. Scheduled Caste/Tribe;
6. Father's name;
7. Present address;
8. Permanent address;
9. Educational qualifications (Commence with B.A./B.Sc.
10. Appointed as
11. Date of appointment/promotion;
12. Validity of appointment;
13. Appointed under Statute No. (provided there is more than one Statute under which teachers' appointments are made);

14. Confirmed/left service (give reasons);
15. Office Order No. & date (with reference to '14');
16. Details of study/sabbatical leave availed
17. Date of retirement;
18. Extension granted, if any; and
19. Additional Remarks

Study leave

Faculty members may proceed on study or sabbatical leave when it becomes due as per the provisions contained in the leave ordinances. In many universities no application form has been devised for this purpose. For the prompt disposal of requests for such kind of leave, it is desirable that these are submitted in a prescribed form so that the authorities concerned should know all the relevant facts of the case. A format for the purpose is suggested below; this could also be suitably used for sabbatical leave.

1. Name of the teacher;
2. Date of initial appointment.
3. Date of birth ;
4. Whether temporary or permanent ;
5. Details of study Leave/sabbatical leave availed earlier for any other training programme with dates ;
6. Programme of study/programme of research proposed to be pursued during leave;
7. Name and address of the institution where programme of study etc. is to be pursued;
8. Period for which study leave is sought (with dates) along with details of any other kind of leave, including vacation, proposed to be taken in combination of study leave;
9. The amount of scholarship/fellowship or other financial assistance to be received from sources outside the university, if any, during study leave;
10. Name and address of the institution which has awarded scholarship/fellowship, financial assistance etc. (attested copies of the communications are attached); and
11. The permission of Government of India for accepting the scholarship etc., has been obtained/is yet to be obtained.

While forwarding the application to the Registrar through the Dean of the Faculty concerned, the Head of the Department should indicate the alternative arrangements proposed to be made for carrying on the work of the teacher who is proceeding on leave.

Appointment of foreign nationals

Some of our universities have initiated programmes of study in various foreign languages. For this purpose, they have to continue to appoint, at

least, for some time to come, foreign nationals. The services of foreign nationals for teaching foreign languages can be obtained either through the good offices of the Union Ministry of Education or the University Grants Commission under various Cultural Exchange Programmes currently in operation. Under these programmes, the persons to be appointed are identified either by the Ministry or the UGC, in consultation with universities concerned, and there is no need to approach Government of India for obtaining prior permission with regard to their appointment. In all other cases, however, it is necessary to secure the prior approval of Government before a teacher is allowed to join the university. Therefore, while referring the matter to the Ministry, the following information should be furnished so as to enable it to communicate its decision expeditiously:

1. Name;
2. Date of birth;
3. Permanent address;
4. Address in India;
5. Qualifications;
6. Passport No., date, place of issue, who issued it, date of its validity;
7. Visa No., date and place of issue;
8. Nature of visa (whether short-term, tourist etc.);
9. Date of arrival in India;
10. Occupation in India after arrival;
11. Any additional information;

A foreign national who arrives in India on a short-term/tourist Visa, is not expected to change the purpose of his visit or seek extension of stay. Therefore, unless he has been permitted by Government to prolong his stay, he should not be considered for employment in the University.

Participation in Conferences

Proposals for visits abroad for participating in the deliberations of international conference, seminars etc., need prior approval of Government. For this purpose, the following procedure should be particularly noted :

- (a) Where the entire expenditure is to be met by the University or Government or a statutory authority or the teacher himself, the university may give necessary permission and inform Government to this effect. Local hospitality can be accepted provided it is considered reasonable by the university, and is not intended to cover the cost of international travel. A certificate to this effect is to be furnished at the time of transmitting this information to the Central Government in this regard.
- (b) In case where the invitation provides international travel with or without local hospitality, prior approval of Government of India

would be necessary. However, if the invitation is for attending a conference or seminar organised by a U. N. Specialised Agency and has been routed through the concerned Ministry/Department of Government of India and the cost of international travel is to be met by that Agency, no prior permission is necessary but information may be sent to Government.

- (c) All proposals for the approval of Government of India should be sent to the University and Higher Education Division in the Ministry of Education, New Delhi, at least one month before the departure of the persons concerned.

It is suggested that the proposals seeking the approval of Government should be complete in all respects and invariably accompanied by the following information, documents to enable the Ministry of Education to deal with them expeditiously :

1. Name (with expanded initials);
2. Designation;
3. Faculty/Department;
4. Date of birth;
5. Place of birth;
5. Father's name;
7. Permanent address of the teacher;
8. Present address of the teacher;
9. Qualifications;
10. No. of publications
 - (a) Books
 - (b) Research Articles
11. Particulars of the conference, seminar, etc.,
 - (a) Whether Conference/seminar/symposium/meeting etc.,
 - (b) Subject;
 - (c) Venue; and
 - (d) Date(s).
12. Subject of the paper to be read at the seminar;
13. Whether presiding over any session of the conference etc.;
14. Institution which will bear expenditure on :
 - (a) International travel; and
 - (b) Maintenance abroad.
15. A copy of the invitation letter is to be attached; and
16. Foreign exchange requirement, if any.

Note : (The same form could be utilized with suitable modifications while seeking the approval of the Ministry for accepting fellowships etc.)

Where all expenses on the participation of the teacher concerned in a conference are to be met by

the university or by any other Indian organisation, a certificate is required to be issued to the faculty member concerned conveying no objection of the university to his participation in the conference and stating that the period of his absence will be treated as on duty, (or any other kind of leave, as the case may be), and that the university will not remit any foreign exchange to him during his stay abroad. The university is, however, required to approach the Ministry of Finance (Economic Affairs Department) seeking their approval for the release of the requisite amount of foreign exchange. The Ministry, if the request of university is acceded to, will write to the Reserve Bank of India, requesting them to issue a foreign exchange permit.

Checklist

In order to watch that all the work to be done after a teacher has joined duty is completed promptly without any omission, it is essential to devise some kind of checklist. Two copies of such a checklist could be prepared, one to be kept in the personal file of the teacher concerned and another in a separate Master Folder, in an alphabetical order, so that the entries made in the latter copy could be reviewed from time to time. Such a systematic approach to the work would ensure correct record keeping. The checklist could be in the form noted below

1. Name of the Faculty Member
2. Designation
3. Faculty
4. Department
5. (a) Basic Salary allowed at the time of appointment
- (b) Any change made in the salary
6. Date of appointment
7. Check who appointed :

(a) Vice-Chancellor	{ In these cases, state when appointment was regularised on the basis of the recommendation of the Selection Committee and approved by the Executive Council.
(b) Executive Council	
	(a) Selection Committee meeting date :
	(b) Executive Council Resolution No. :

(c) Executive Council (On the recommendation of the Selection Committee)—Resolution No.

8. The following papers etc., have been kept in the file (where no page number is to be given, please check "✓" and put initials).
 - i) copy of advertisement —P
 - ii) Application Form of the teacher —P
 - iii) Copy of the minutes of the Selection Committee —P
 - iv) Copy of the curriculum vitae circulated to members of the Selection Committee-P
 - v) Copy of the Executive Council resolution approving the appointment (Vide Resolution No.)-P
 - vi) Copy of the offer letter
 - vii) Entry has been made in the 'Offer sent' register
 - viii) Copy of appointment order
 - ix) Copy of the Executive Council resolution confirming the faculty member.
9. The following entries have been made and the documents prepared
 - a) Establishment Register
 - b) Increment Register
 - c) Ad hoc appointment Register
 - d) Register showing the sanctioned strength of the staff each Faculty/Department
 - e) Seniority list of the Faculty
 - f) Register showing the staff in position
 - g) Index Card
 - h) Formality Completion Register
 - i) Service Book
10. The staff member has completed the following formalities submitted the documents (where no page number is to be given, please check "✓" and put initials).
 - (a) Signing of the Service Contract
 - (b) Medical Fitness certificate-P
 - (c) Attested copies of the original certificates/diplomas, including Matriculation/Higher Secondary certificate showing the date of birth-P
 - (d) Completion of Service Book
 - (e) Home Town declaration-P
 - (f) Exercising of option concerning retirement benefit schemes



Convocation

PM at NEHU Campus

The first convocation of North Eastern Hill University was held on April 22, 1976 at Shillong. Prof. Nurul Hasan welcomed the Prime Minister, Smt. Indira Gandhi, on the campus when she addressed the first convocation. He said that it is significant that we are now moving towards a concept wherein we do not wish our universities to remain prisoners of ivory tower but to involve themselves with the processes of development with the search for new solutions to problems facing mankind. This university was charged with the responsibility for organising and undertaking extra-curricular studies and extension services so that its laboratories and libraries, students and teachers were actively engaged and involved in the process of development and contributed directly as well as by their research in study to the progress of Meghalaya, Nagaland, Mizoram and Arunachal Pradesh. This university has to function in a way that the different sections of the people while retaining their identity and culture are drawn towards one

another and begin to feel that they are members of the same family. The university was instituted as a matter of deliberate policy to ensure the maintenance and further development of the composite culture of the region in accordance with the genius of the people concerned and in keeping with the cultural heritage of each section of the people inhabiting the north eastern zone.

The Prime Minister while addressing the convocation said that the modern system of education derived inspiration from western model stressing individual advancement. It was rather a means to a degree or other extra criterion for employment. The emphasis have been on getting and not on giving. Concern for and cooperation with others and feeling responsible for corporate welfare had been comparatively neglected in this system. She said that every nation must constantly reconcile a claim of continuity with the compulsion of change which was inevitable. If we did not meet it half-way, it would overwhelm us. So we had to reconcile

immediate needs with the future welfare. The tribals always respected their traditional values and were anxious to preserve and revive these values while taking advantage of intellectual and technological benefits of what was known as modernity. To belong to one's tribe, religion and State made one better Indian but one should not narrow the sense of belonging to a larger humanity. She said that non-formal education was the best way to keep us more alive and more in touch with the changing problems. Education is the spirit of enquiry, the ability to keep one's mind and heart open to beauty and goodness, indeed to all that surrounds us, to be able to think and judge of oneself.

Dr. Chandran D.S. Devanesen in his welcome address outlined the progress of the university during the past few years. He pointed out that the administrative staff has grown over the years and teaching and research faculty has been fully established. Steps have been taken to make the university to contribute to the bodies, minds and spirits of all who came in contact with it from the different regions of this part of the country. He announced that the Maghalaya Government had gifted 1025 acres of land for the new campus.

Agricultural Varsities Co nvention

The seventh annual convention of the Indian Agricultural Universities Association was held at the College of Veterinary Science, Khanapara campus of the Assam Agricultural University. The Chief Minister, Shri S.C. Sinha, in his inaugural address said that the agricultural universities of the country should justify the expenditure on them and on the training of agricultural graduates in terms of tangible results achieved in improving the socio-economic conditions of the poor peasants. The universities should also inculcate a mental discipline in the students and make them realise that they were indebted to the society, to the poor tax-payers

and that they had to repay that debt to the society and the poor. He said that the activities of the agricultural universities should not be confined only to the laboratories but must find application in the field in improving the socio-economic conditions of the people in general and the poor peasants in particular. At the same time the universities should bring out a change in the outlook and attitude of both the teachers and the students. Mr. Sinha appealed to the tribal people to give up 'jumping for terrace cultivation' and to give up their resistance to take advantage of irrigation and changing the cropping pattern so that a winter crop might be grown to lessen the State's dependence on flood-prone summer crop. These were some

of the problems for the Assam Agricultural University to examine and study.

Shri L.P. Singh, Governor of Assam, in his address, emphasised the big challenge facing the agricultural scientists to double the foodgrain production to 205 million tonnes by 2000 A.D. when the population would grow up to anything between 830 millions and 1032 millions. He was confident that taking into account the yield levels attained in government experimental farms and the availability of inputs, the yields could be raised to three times that of the present level by the turn of the century. About 120 delegates from different agricultural universities in India attended the convention.

ROUND UP

Tamil Nadu Science Academy Inaugurated

Professor M. G. K. Menon, Scientific Adviser to the Ministry of Defence and Secretary, Department of Electronics, inaugurated the Academy of Sciences for Tamil Nadu in Madras on April 23, 1976. He said that this new body should not function as a department run by the government. On the other hand it should maintain its own individuality and autonomy. In spite of distinguishing tradition of science in India, for a variety of reasons they had lagged behind others in the world. Even now there were about 1.5 million qualified scientists but they were not making full use of their talents. A lot of science today was 'big Science' involving money which should naturally come from the Government. The direction in which they should proceed is also to be given by the Government. But science that was fettered could not be original and would not attract the finest men. He said that the Academy should be independent of the Government. Scientists and technologists had a responsibility to think deeply about the measures to promote the welfare of their fellow citizens as a whole.

Dr. Malcolm S. Adiseshiah, Vice-Chancellor of the University of Madras, briefly outlined the genesis of the establishment of the Academy on the advice of the Vice-Chancellors of the Universities and the Director of the Indian Institute of Technology. They had taken a lead in organising the Academy to promote science education and research and provide guidance to the State in formulating policies in science and technology.

Dr. G. Rangaswami, Vice-Chancellor, Tamil Nadu Agricultural University, was elected the

President of the Academy. Other office bearers were : Dr. Alladi Ramakrishna and Dr. H. S. S. Lawrence, Vice-Presidents, Dr. V. C. Kulankdalswami, Secretary, Dr. M. Natarajan, Treasurer. The other council members are : M's T. M. P. Mahadevan, G. Vankataswami, G. S. Ladda, M. Parathasarathi, G. R. Damodaran and M. Santappa.

Technical Education Conference

A two-day conference of Principals, Directors of Technical Education and Faculty Members of the southern region was held at the P. S. G. College of Technology, Coimbatore. The conference was inaugurated by Mr. C. R. Damodaran. He stressed the need for changes in the pattern, organisations and content of technical education to make it more meaningful and useful. He advocated thorough overhaul of the present technical education to make it more relevant and effective keeping in view the rapid technological advances, changing values and aspirations of society besides an awareness of the learning process and the constraints on resources. He said that the subject-oriented and discipline oriented studies which have been conducted so far will no longer be sufficient. We need skills in synthesis, design creativity and entrepreneurship. So the courses have to be oriented to areas of effectiveness in a functional sense. Mr. Damodaran also emphasised the importance of devising links with the industries through cooperative and sandwich programmes. It was necessary that industries be associated in educational decision making and implementation as well. For this, curricula have to be flexible.

Dr. K. A. V. Pandalai, Director of IIT, Madras, said that one of

the reasons for qualitative improvement in technical education not coming through in spite of the various findings of the committees was due to the lack of will to implement. The main difficulty was that the process of planning was divorced from implementation. He called for collaborative and joint ventures between universities for research and development purposes. Such ventures should not be confined to Indian universities but should also be initiated between Indian universities and universities in foreign countries. Such an experiment with the German universities has been successful in IIT.

Patna plans Inter-faculty Combinations

The Patna University would be introducing inter-faculty combination of subjects in its curricula from the next academic session. Prof. D. Sharma, Vice-Chancellor of the University said that such combination of subjects would be the first of its kind in the State and would enable the students of one faculty to study subjects of other faculty. Due to the absence of inter-faculty combination of subjects the students could not study subjects of their choice even though they may be inter related. The students of geology, statistics and zoology could not study geography, economics and psychology since the two groups of subjects were taught in different faculties. To end such a situation the university has decided to provide such combinations.

A committee consisting of Deans of all faculties, Heads of Departments and Principals of colleges has been appointed to study the feasibility of introducing this scheme and suggest ways and means for its successful implementation. The committee will especially look on job-oriented education under the new scheme of inter-faculty study.

The Patna University has also decided to reorganise the IAS coaching centre in order to impart better coaching to the students.

The Deans, Principals and Heads of the Departments have been requested by the Vice-Chancellor to reframe syllabi and prepare topic-wise lectures for these coaching programmes. More emphasis would be laid on viva-voce tests in which the performance of local candidates has not been satisfactory so far. The IAS coaching centre was opened by the Government in 1949 and a grant of Rs. 6,800 was made for this purpose. The coaching centre has since become very popular and is at present run on six-month course basis in two parts each of three months of intensive coaching.

IIT's Offer for Varsities in developing Nations

The institutes of technology have offered to establish universities of engineering and technology on a turn-key basis in developing countries. A proposal to this effect has been submitted to the Government and the Directors of the institutes are working out the other details of this blueprint.

The IITs will offer a wide range services for formulating syllabi to the requirements in a given country of designing and constructing university townships, laboratories and workshops. They have a 1500 strong pool of highly trained teachers who can train people for teaching staff at the universities in the shortest possible time.

The IITs have through their own experience learnt the tasks involved in developing a technical institute in collaboration with the developed countries. While the Kharagpur is the oldest and wholly Indian, the Soviet Union, the United Kingdom, the United States and West Germany collaborated in the establishment of the institutes at Bombay, Delhi, Kanpur and Madras respectively.

With experience of growth for a period of twenty five years, the IITs are in a position now to help a developing country which wished to avoid a direct transfer of a developed country's technology and the accompanying

problems of adaptation.

The University of Roorkee has already taken a lead in this direction and was conducting a special high level course for students from Tanzania at the request and expenses paid by the Tanzanian Government. About 1000 foreign students were at present being trained at the various engineering universities and institutions.

Stemming the Brain Drain

The Government of India is considering curbs on migration of highly trained Indian scientists and professionals to other countries in search of lucrative jobs. Some of these steps include : (1) publication of a monthly manpower bulletin in respect of persons available for employment and distributing about 3000 copies of this bulletin to various employing organisations, (2) recommendation by the Council of Scientific and Industrial Research of suitable candidates to various employers and recruitment agencies in response to the recruitments notified by them; (3) scrutiny by the CSIR of advertisements and recommending suitable registrants for consideration against these advertisements and (4) offer of research fellowships to scientists, engineers, and medical personnel by the CSIR, UGC and the Indian Council of Medical Research. Besides, employment opportunities are generated under the research schemes financed by different agencies in universities and other institutions. Temporary placement is also provided to scientists, technologists with high academic records from the scientist pool scheme.

The Government of India has also taken a number of steps to facilitate the return of scientists and technical personnel to India. These steps include a package scheme to attract the Indian scientists, technicians and engineers working in production units abroad to return to Indian and start their own industries particularly in spheres where they possess acquired skills in production technologies. The Union Public Service

Commission and many of the State Public Service Commissions treat Indian scientists and technicians whose particulars appear in national register as personal contact candidates for all the posts advertised by them. The Government is also considering the steps to place restrictions on certain highly essential and scarce categories of persons employed abroad and laying down the compulsory repatriation of a part of their earnings abroad. The administrative and legal aspects of these measures are also being examined.

Consultancy in IITs

The consultancy services in the five Indian Institutes of Technology have made a considerable headway. These services were organised in the institutes as a result of their dialogue with the industries for increasing their usefulness to user organisations. This inter-action has led to the development of testing and consultancy services. The IIT, Madras has an industrial consultancy centre which was established in 1973 for the promotion of research and development. It has close links with public sector undertakings like Hindustan Aeronautics Limited and State Trading Corporation. This has increased the earnings from Rs. 22.7 lakhs to Rs. 47.2 lakhs in 1975.

The IIT, Bombay has undertaken about 150 industrial consultancy projects. Its income so far has been about Rs. one crore. Development of new processes and products and adaptation of the available technical know-how to Indian conditions have been some of the highlights.

The IIT, Kanpur has developed a fairly long list of user organisations like the Atomic Energy Department, Space Science and Technology Centre and the Hindustan Steel Limited. Its consultancy services include calibration and testing facilities, sponsored research, design and development projects and faculty consultation. There are about 56 projects sponsored by various organisations. During the current year they have earned Rs. 1.38 lakhs.

The Delhi IIT has an industrial consultancy and design centre to serve as an effective communication channel with industries and research organisations for purposes of development. The user industries include the Electronic Commission, the department of Space and Technology and a number of other public and private sector industries. Since 1971-72 they have earned Rs. 87 lakhs from research and Rs 11.6 lakhs from other jobs undertaken by them.

The Kharagpur IIT has consultancy custom spread over a wide field which includes the Garden Reach Workshop and many departments and organisations which have been availing of the facilities in the other institutes also.

Convention of National Teachers Forum

A two-day convention of academicians and Vice-Chancellors was held recently in Delhi. It was unanimously recommended that the education be made a concurrent subject in order to integrate goals of social and economic planning with the process of education. The convention also recommended that priority should be given to strengthening school education and higher education should only be selective. The convention condemned the climate of violence that has prevailed in the past few years and said that the new climate of peace and discipline should be maintained till its gains were fully consolidated. It called upon the educational authorities to utilise this opportunity to restructure the contents and methods of education at various levels. There was a general agreement on de-linking jobs from degrees.

The convention said that the social relevance of education in the country would mean, among other things, the recognition by the academicians of his duty to acquire international value of knowledge in his field and re-thinking of Indian values and their compatibility with scientific and empirical knowledge. It

urged the linkage of education with environmental needs and redefining its priorities. The State Governments and Vice-Chancellors have been requested to implement these recommendations expeditiously.

The national forum of teachers had convened this meet. The forum is advocating exchange of teachers between universities of north and south to promote national integration. It would also work for the implementation of the reform proposals adopted at the convention.

Bihar Coordination Committee

A state-level University Coordination Committee has been formed in Bihar. The Chief Minister would be its President and the Education Minister would be its Vice-President. Dr Sudarshan Prasad Sinha, Principal, T.N.B. College, Bhagalpur has been appointed Deputy Chairman. He will have the status and rank of a Vice-Chancellor. The post will be full-time and he would be the chief executive officer of this body.

The six universities in Bihar would be free to conduct the examinations and publish the results but the evaluation of answer books and research dissertations of various university examinations would now be done as per rules and procedures formulated by the Coordination Committee. This body would also have the power to guide and supervise the research and postgraduate teaching in various colleges of the universities. The committee is also empowered to inspect colleges and universities through its members or its agents. The inspection reports would be sent to the authorities concerned and they would be given a time limit for implementing the various recommendations.

The committee will have three Vice-Chancellors of which one would be from Patna University. There would be two nominees of the University Grants Commission. The State Director of Education will also be one of its members.

NIS Athletic Coaching Plan

A comprehensive plan for conditioning and coaching athletes for the Olympic and Asian games has been suggested by Mr. C.M. Muthiah, Deputy Director of Netaji Subhash National Institute of Sports, Patiala. The problem of evolving a proper training system for athletes in Asia was becoming difficult in respect of the periodising because the national and international events in various countries were spread all over the year. The athletes could therefore be prepared for peak performance in only a very limited number of meets. For example the national meet in Thailand was held in January and in Malaysia in August while in India it was being organised in December-January.

The national coaches of leading Asian countries in athletics should decide with their respective federations how periodising the training can be regulated for top athletes in relation to national and international events. The sports federations should be asked to prepare their national calendar keeping in view those international events and the programme of training for the athletes should be planned in such a manner that the competition and training plan also suits athletes in schools, colleges and at the top national level. If necessary separate programmes should be chalked out for the athletes in the three groups.

Mr. Muthiah advocated six different plans of coaching and training for various groups of athletes. The first to be attempted is the long term plan of training which should be prepared with the perspective of 8-10 years. The second plan should be in relation to the preparing athletes for Olym-

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pie and Asian games and it should be two to four years of duration. Thereafter there should be an annual plan of training keeping in view the national calendar.

There should also be a sectional plan divided into weeks or the periods followed by a daily coaching plan which should place adequate emphasis on the health and metabolic condition of the athletes, duration, content and load of previous training, psychological aspects, attitude to training and competition and domestic and personal condition and the prospects of the athletes to be trained. Unless the training is regulated on a scientific basis, the athletes can not be expected to produce results in top level competitions

Forensic Science Academy

The Academy of Forensic Science in Tamil Nadu is likely to be established in the near future. It would serve as a common forum for medical men, lawyers and police officers in the administration of justice. The recent advances in the various fields of Forensic Science has made it essential that the proper communication of knowledge is maintained amongst the lawyers, judges and police officers.

Bengal VCs to Retire at 65

The West Bengal Universities Laws Amendment Bill, 1975 was passed by the State Legislature fixing the age of retirement of Vice-Chancellors at 65. The present incumbents will however not be affected by this amendment. The State Education Minister while piloting the Bill said that the Gajendragadkar Committee had recommended that in view of heavy work, the office of the Vice-Chancellors should be whole-time salaried one and the Vice-Chancellors should retire at the age of 65. This was also the accepted pattern in Maharashtra and Delhi.

New JNU Lecture Series

The Jawaharlal Nehru University, New Delhi, has introduced two new lecture programmes from this academic session. All professors who have been with the

university for more than a year will be required to deliver these inaugural lectures meant to formally introduce their work to the academic community.

Dr. Bipin Chandra is the convener of the Programme Committee. He said that nearly 30 such professors would speak about their recent contributions to knowledge particularly in their fields of study. The first inaugural professional lecture was delivered by Dr S. Gopal who has been a professor of cotemporary history since 1970. The second series of lectures will be delivered by distinguished scholars in various fields from all over the country.

India's Technology Manpower

Dr. A. Ramachandran, Secretary, Department of Science and Technology, Government of India, while addressing the Unesco conference on the training of engineers and technicians informed that the world's biggest science and technology manpower was in India. There are 141 engineering colleges with an admission capacity of 25,000 students each year and 22 polytechnics with an admission capacity of 2,000 per year. In addition, there were five Indian Institutes of Technology training high grade technical personnel. The out-turn of these institutions was over 18,000 engineers and 28,000 technicians until admissions were cut in 1968 because of the recession in industry.

New Science Journal

The Bangalore University would be bringing out from the next academic year a monthly magazine in Kannad 'Janapriya Vidnana' to popularise science at the level of common man. Dr. H. Narasimhiah, Vice-Chancellor of the university, in his appeal to the public, students, educational institutions and village panchyats has urged them to subscribe the journal and make the venture a success.

The journal will be edited by Shri K. C. Shivappa. It will carry articles on various branches of science including health, scientific attitude, biographical sketches and science quiz.

New Orissa Statutes

The Orissa Assembly passed the Orissa Universities Laws Amendment Bill in its budget session for the efficient working of the universities in the State. One of the notable features of the Statutes is that it gives power to the Government to supersede any university administration. Under the amended Act, the Chancellor can direct the authorities of the university including the Vice-Chancellor to take remedial measures within the stipulated period on reports of enquiry that might be ordered by the Chancellor and the university authorities—the Senate, the Syndicate, and the Academic Council—are required to report to the Chancellor. If the Vice-Chancellor or the authorities fail to comply with the directions of the Chancellor within the stipulated period, he could take remedial measures as he deems fit.

The supersession of the authorities and taking over the management of the authorities by the Government has been provided when the State Government after making such enquiries as they deem fit are satisfied that the management of the concerned university has not been and cannot be carried out in accordance with the provisions of the Act or that there has been a default in the performance of the duties of the authorities of the university which is not likely to promote its objectives. The State Government may after consultation with the Chancellor take over the management of the concerned university and appoint an officer to be the administrator. Such supersession will continue for a period not exceeding one year. If after the expiry of the period the State Government is of the opinion that the management should be continued by the State Government it may extend the period for another year but such supersession should not exceed three years. During this period all the powers of the four authorities viz., the Vice-Chancellor, the Senate, the Syndicate and the Academic Council, will be vested

in the administrator who will take the place of the Vice-Chancellor.

The procedure for nomination of the Vice Chancellor has also been changed. In the amended Act, the Senate will no more have a say in the appointment of the Vice-Chancellor. The composition of the three-member nomination committee to recommend a candidate to be nominated as Vice-Chancellor by the Chancellor has also been changed. It will now consist of one member each to be nominated by the Syndicate, the UGC Chairman and the Chancellor. The Chancellor will also name the Chairman of this committee. The term of the Vice-Chancellor has been reduced from five to three years and his salary has been raised from Rs. 2000/- to Rs. 2,500/- p.m. No person shall be appointed a Vice-Chancellor for more than two terms under the new provisions of the Act.

For the first time the student participation in the Senate has been ensured. Two students are to be nominated by the Vice-Chancellor from amongst the Presidents and Secretaries of the unions of colleges. Other two are to be nominated from the students who have shown outstanding performance in any or all of the following activities: academic pursuits, sports, national service schemes, national cadet corps and cultural activities. The fifth will be a woman student to be nominated by the Vice-Chancellor.

VCs of Hill Universities meet in Shillong

A conference of Vice-Chancellors of universities in the Himalayan region was hosted by the North-Eastern Hill University in Shillong. Dr. M.S. Swaminathan, Director-General, Indian Council of Agricultural Research was the prime mover in bringing the Vice-Chancellors together. In his address he laid special stress on the need of university involvement in the development of the hill areas of the country. The Himalayan region has provided a unique response to the challenge of maxi-

mising agricultural production. The academic community has accepted the time bound schedule to organise the student-teacher community in restructuring the villages and the rural life. Each university would select a district to compile an inventory of its resources, the Indian Council of Agricultural Research and the Council of Scientific and Industrial Research would come forward to conduct workshops to train the inter-disciplinary group of the concerned university on conducting the survey. Research and training in agriculture, animal husbandry are the special responsibilities of the agricultural universities. The general universities having departments of biological sciences could also benefit by the field study inherent in such surveys. The postgraduate students could also be involved. The task force would provide the necessary framework for conducting such a survey of the resources.

The ecology of the Himalayan region and the problems of agricultural production connected with it has not been fully studied. For this purpose the ICAR has a number of its institutes in this region. Besides, it also finances the various research projects.

Dr. Swaminathan said that concerning these subjects the universities in Himalayan region have a teacher-students community of over 75,000 which could be a great force in revitalising rural life. The Himalayan mountain regions are rich in germ plasma and genetic resources of wild and cultivated plants. A survey and collection of the plant wealth was therefore necessary. There were medicinal and aromatic plants which needed to be studied and identified. Chemical extraction from them could lead to various economic uses.

Since women formed an important part of tribal life, a training centre for them would be set up shortly in this region, with an outlay of Rs. 25 to 30 lakhs for the remaining part of the plan. The aim was to train women in a more scientific manner, eliminate the drudgery and increase their

purchasing power through increased output.

Mass Media Cells for States

Educational technology cells have been set up in a number of States like Punjab, Uttar Pradesh, West Bengal, Himachal Pradesh, Manipur, Tamil Nadu and Jammu & Kashmir. The cells are designed to stimulate and promote integrated use of mass media and instructional technology at all levels including non-formal education of adults. This scheme is intended to achieve qualitative improvement as well as acceleration of the rate of expansion of educational facilities. It is expected to reduce wastage at all levels. This programme is being implemented with the collaboration of UNDP and involves not only the setting up of such technology cells in the States but a centre for educational technology as a separate institute of the NCERT at Delhi and an educational technology unit in the Ministry of Education.

The centre for educational technology has already been established in New Delhi. Its programme includes development of innovations in education, training of teachers, communicators and administrators, evaluation of materials and programmes and building and information banks of educational technology. It will also be concerned with the development of curriculum and preparation of basic scripts for films, radio and television. Grants amounting to Rs. 15.71 lakhs have been released by the Ministry of Education during 1975-76.

Development of Punjabi Dialects

A seminar on the contribution of Dogri, Pahari, Lehandi and Pothohari to the Punjabi language was organised by Punjabi University recently. At the seminar a strong plea was made for the development of Punjabi dialects on proper and scientific lines. The Education Minister of Jammu and Kashmir, Mr. Rangil Singh,

while inaugurating the seminar said that the Punjabi language had crossed all geographical boundaries and it was receiving considerable patronage in his State along with the three recognised languages of the State i.e. Dogri, Kashmiri and Ladakni. The cultural Academy of Jammu and Kashmir was also making all efforts to contribute to the balanced development of languages through its publications. He appreciated the venture of the Punjabi University in organising such a meet to understand the problems of the various dialects of the language and the need for continuous inter-related cultural developments.

Mrs. I. K. Sandhu, Vice-Chancellor of the University, in her welcome address stressed the need for all round development of Punjabi language. The richness of the local dialects, she said, should be studied and analysed scientifically to make Punjabi really profound and powerful. Through proper assimilation of foreign vocabulary and through preserving the local dialects a powerful citadel of language formation could be achieved soon. A number of papers on different aspects of Punjabi dialects were presented at the meet.

Archaeological Survey Plans for Students Involvement

The Union Ministry of Education has instituted a scheme to involve the student community in the upkeep of historical sites and monuments. While the programme of work is to be executed by the student volunteers of the National Service Scheme, the Archaeological Survey of India would provide the technical guidance and coordination. This scheme was launched in November last year and has since drawn a good response from students all over the country. The Prime Minister had suggested that this programme should be incorporated in the educational curricula of universities and colleges.

Within three months of the launching of the scheme, the environment of the ancient remains of the famous Nalanda

ruins, the remains of the British Residency in Lucknow, the remains of Amravati, Chandragiri and Gurimallam in Andhra Pradesh have undergone a remarkable transformation. The Archaeological Survey of India continues to receive an increasing number of requests from State NSS units for permission to hold camps for this programme at archaeological sites. Among the important sites taken up by the NSS, special mention can be made about the Konarak temple in Orissa and Potom in Gujarat.

Madras Adult Education Department

While speaking at the seminar on non-formal education organised jointly by the State Council of Educational Research and Training and the Tamil Nadu Board of Continuing Education, Dr. Malcolm S. Adiseshiah, Vice-Chancellor, announced that a department of adult education is being organised by Madras University from July this year.

The department would run a

Vacant Academic Posts in University of Cape Coast

The University of Cape Coast has invited applications for the posts of: (i) Professor Associate Professor Senior Lecturer in Accounting Secretarial Practice Mathematical Economics (Econometrics); (ii) Senior Lecturer Lecturer in Social Psychology (including Organisation Behavior); (iii) Lecturer in Home Science Education Educational Planning/Guidance and Counselling; (iv) Senior Lecturer/Lecturer in Biostatistics; (v) Senior Lecturer in Geology; (vi) Lecturer in Marine Biology and Fisheries; (vii) Lecturer in Physical Chemistry and Inorganic Chemistry; (viii) Senior Lecturers/Lecturer in Pure Mathematics/Statistics/Computer Science.

Those interested may get further details and application forms from the Ghana High Commission, A-42, Vasant Marg, Vasant Vihar, New Delhi-110057.

six-week training course in adult education in December in which the staff members from 27 universities in the country would be invited. Dr. J. Roby Kidd, Secretary-General, International Council for Adult Education, Toronto, Canada, is also expected to participate along with some other delegates from abroad.

Amritsar Clinic for Legal Aid

The Guru Nanak Dev University has recently set up the legal aid clinic in its Law Department. The centre would provide not only the required training to the law graduates but would also serve as an ideal institution for providing help to the community. It is hoped that the students of law would move frequently in villages and enlighten the rural people on the various laws seeking to eliminate evils like bonded labour and dowry.

Refresher Courses at Kurukshetra

A two-day convention of college teachers of Haryana was organised by the Physics Department of Kurukshetra University with the financial assistance of U.G.C. A phased programme for improvement in undergraduate teaching has already been introduced by the university. It was decided that the laboratory equipment requiring repairs should be brought by the college teachers to the University Central Instrumentation Workshop of Physics Department. The curricula and syllabi of undergraduate classes are also being revised and inservice training programmes are arranged for the college teachers to refresh and improve their knowledge. The change in the evaluation procedure is also envisaged so that the work of the students could be continuously evaluated.

A ten-day refresher programme for college teachers was also organised by the Department of Political Science. The course was organised with a view to familiarising the teachers with the recent developments in the various fields of Political Science. The lectures and discussions

covered a wide range of topics. On this occasion the Harayana Political Science Association was also formed to keep its members informed of the latest developments in their subject like recent trends in Marxism, theories in international relations, recent developments in public administration, constitutionalism and approaches to the study of Indian Government and Politics.

New privileges for NCC Cadets

The cadets seeking commissioned ranks will now onwards will not be required to appear before the Union Public Service Commission as a first step to their selection but will go directly to the selection board if they hold class three certificate. The Mahajani Committee report on the functioning of the NCC which is under the consideration of the Government, had proposed the change in the aims of NCC training in that the cadets in future will not be expected to constitute a second line of defence but will constitute a force of disciplined and trained manpower which in national emergency could be of assistance to the country. The decision of the NCC Directorate has been taken in view of these recommendations.

Flexible Courses Planned at Madras

Dr. Malcolm S Adiseshiah, Vice-Chancellor, University of Madras, while addressing the 53rd annual meeting of the Guild of Service said in Madras that the University Grants Commission has suggested that the universities should construct their syllabi for the degree courses in such a way as to make the students useful to the society. There could be combination of subjects like Physics, Chemistry and Fertilisers and their application on Economics, Commerce and Cooperative Society Management. The purpose of such a combination was to help the students to learn modern subjects thoroughly and also gain practical knowledge so that they

become useful to the society and the nation after completing their courses in universities and colleges.

From the next academic session, the University of Madras is proposing to provide community service to nearly 20,000 students of its postgraduate and undergraduate colleges. Out of 165 colleges of Tamil Nadu this facility would be offered in 45 colleges where semester course was available. The community service would be offered by the organisations like the Guild of Service. Under this programme the students doing the community service would be assigned some marks out of the maximum of 100. There would however be no compulsion on any subject. The community programme would thus give sufficient human resources and material for the Guild of Service to expand its dedicated work for the less privileged classes.

Jadavpur College of Physical Education

The National Council of Education is planning to start a College of Physical Education at Jadavpur. Initially the B.Ed course in Physical Education would be started and later on as more funds are made available, the postgraduate course would also be started.

The Jadavpur Vidyapith has been chosen for the introduction of this scheme. The Vidyapith is fully equipped with the basic organisation for conducting the teachers training course under affiliation by Jadavpur University.

New Farm Varsity in Karnataka

The Karnataka Government has made a request to the University Grants Commission as well as the Indian Council of Agricultural Research for setting up of another agricultural university in the State. The World Bank has already sanctioned an aid of Rs. 25.5 crores for the seed production project which is likely to start in 1977. A seed certification agency has been set up

to ensure the supply of good standard seeds to the farmers. The new agricultural university to be located at Dharwar would take up the work in this direction.

TV for Mysore Varsity

The Mysore University is likely to have a closed circuit television system. The university has sought the advice of the Electronics Corporation of India in this connection. The TV system would be of great help in developing the audio-visual centre of the campus.

In the meantime TV programme under the SITE programme has been arranged on an experimental basis for a period of three months. Though the programme would be rural-oriented, those in campus would make a special study of its impact on the masses.

Mr. D V. Urs, Vice-Chancellor of the University, while inaugurating the three-day International Newspaper Exhibition organised by the Postgraduate Department of Journalism of the university pleaded with the faculty to bring out a community paper as there was an urgent need for applied knowledge in the sphere of Journalism. The university will soon decide the quantum of monetary assistance to be given to students who are sent for training in the newspaper offices by the department of Journalism.

New Facilities and Courses in Mysore

The Mysore University would start a postgraduate course in marine geology at its Mangalore Centre from the next session. A computer centre, a central instruments centre, a common centre of all applied sciences and a health centre are also proposed to be established on the university campus. The University Grants Commission has agreed to provide a grant of Rs. 2.8 lakhs for starting the marine geology course. The university would provide Rs. 1.6 lakhs towards this project from its own resources.

A sum of Rs. three lakhs has been provided in the budget for 1976-77 for the construction of new buildings for the post-graduate centre at Shimoga.

The university has decided to offer interest free loans to its teachers going abroad for training. It is felt that a person teaching ancient History would be better equipped if he spent some time in Greece. Similarly a Urdu language teacher would develop a greater perspective if he visited Iran and Iraq. The university would encourage the faculty to avail this facility. A one-year M Phil course leading to the doctorate degree in different faculties, would be introduced from the next session.

It is expected that the Institute of Scientific Study of Socialism would also start functioning from the coming academic session.

Scientific Studies of Occult Phenomena

The Bangalore University will conduct scientific investigations of miracles and occult and others such phenomena. Dr H Narasimhaiah, Vice-Chancellor of the university feels that there exists lot of superstition in society which had damaged the self-confidence of man and the progress of society. It was one of the functions of the university to investigate all such phenomena on a rational and scientific basis for the benefit of the people. The university has decided to send committees consisting of competent persons to carry out investigations which would be very objective and systematic. The university has already made a beginning by setting apart a sum of Rs. 25,000 in its budget for 1976-77 for this purpose. The Committee would make a thorough study of the available literature and would also visit places where un-natural phenomena were reported to find out the truth. The members of the committee would consist of both persons believing in supernatural phenomena and also non-believers.

Correspondence PG Courses

The Panjab University will start correspondence courses at the postgraduate level in English, History, Political Science, Economics and Public Administration. A certificate course in Library Science would also be started to meet the growing need for training personnel in school and college libraries. A sum of Rs. 1.25 lakhs has been earmarked in the budget to extend library and guidance facilities to correspondence students. A mobile library service would also be introduced shortly for the benefit of students.

Sugarbeet Research Centre for Pantnagar

The G.B. Pant University of Agriculture and Technology has become an important centre for sugarbeet research in the country. The Indian Council of Agricultural Research in appreciation of the pioneer work of the university has shifted the headquarters of the All-India Coordinated Research project on sugarbeet from Lucknow.

The research personnel of the university have already succeeded in making sugarbeet flower in fields in the plains. Uptil now it had flowered and produced seeds only in higher hill areas with cold and dry climate. The recent discovery will enable the farmers to produce their own sugarbeet seeds. The university has also developed three new varieties of arhar maturing in 112 to 118 days. The UPA 120 was recently released for cultivation in northern India. The university has also reported an important breakthrough in developing new varieties of sunflower. The technology for production of nucleus and foundation seeds of sunflower for maintaining the high vigour of the plant and high oil content of the seeds have also been perfected. A sum of Rs. 3.8 lakhs has been allocated for sugarbeet research during the fifth plan period.

ONGC—Andhra Projects

In collaboration with the Oil and Natural Gas Commission, the Andhra University will soon initiate joint projects from the academic session 1976-77. The study of the Krishna-Godavari modern delta and geomorphological evolution of the East Coast of India would be the two main areas of work.

Dr. V.B. Sastry, Director of Research and Development, Institute of Petroleum Exploration, ONGC, visited Waltair and held prolonged discussions with Prof M. Purnachandra Rao of the Geology Department and Professor R. Vaidyanathan of the Geography Department for the implementation of these projects. Incidentally it will be for the first time that the ONGC will be collaborating with academic bodies in research projects.

These projects will cover basic data which would help in understanding the basis of accumulation of oil for future exploration. The preliminary drilling has indicated that oil exists on the east coast of the main land as well as on the west coast of the Nicobar and Andaman islands. A sum of Rs. 4 lakhs is expected to be made available to the university in addition to the equipment for the department for over a period of four years.

Entrance tests for Undergraduate Admissions

The Osmania University has devised various programmes for the reform of undergraduate education. To start with year-wise examinations for all the three years of BA, BSc and BCom have been introduced from the academic year 1975-76. From the coming academic year, entrance tests for admissions to undergraduate courses would also be introduced in the faculties of Arts, Science and Commerce. The proposed entrance tests would involve roughly 15,000 students of 100 degree colleges of the University run by the State Government and private managements. The entire area has been sub-divided into nine zones. Examinations will be

conducted on the same day at all the centres. Zonal conveners will declare the results of their respective zones and ensure that admissions are made in order of merit in the colleges in each zone.

These tests would ensure fair admissions to all the degree colleges of the Osmania University and no meritorious student would be left out. This procedure would also help to reduce the rush for admission to various degree courses. Those students who do not have an aptitude for higher education will be diverted to short-term professional courses or job-oriented courses. As the ceiling for each college has been fixed at 800 only, the best students coming from intermediate examinations will be admitted to a degree course. The entrance tests would go a long way in improving the educational standards at the undergraduate level. Entrance tests for admission to postgraduate and professional courses have already been established for quite some time in this university.

To ensure the implementation of educational reforms the Academic Council of the University decided to establish a separate cell under the chairmanship of Dr. S R Kulkarni, Professor and Head of the Department of Marathi to initiate follow-up action with regard to various measures of reform introduced from time to time. Dr. Kulkarni would be assisted by a coordinating committee which would bridge the communication gap between various degree Colleges and the University.

News in Brief

The Andhra University has decided to introduce law course at BA level and a Bachelor of General Law degree course in correspondence from 1976-77.

X X X X

The Haryana Government has decided to rename the Kurukshetra University after Mr. B.N. Chakravarty who had been its Chancellor for eight years till his death.

X X X X

A postgraduate two-year course in Business Management would be started from June, 1976 at Gujarat University. To start with, 40 students would be admitted. The buildings for the department are nearing completion with the liberal aid from the industrial houses and the University Grants Commission.

X X X X

The Andhra University is considering a proposal to admit candidates to appear for the degree examination without appearing for the 10th and intermediate classes. But before giving permission for such appearances, the candidates should be employed and would be tested through an entrance examination to be conducted for this purpose. They should also have undergone correspondence course of the university and should be above 30 years in age.

PERSONAL

1. Shri D. V. Urs has taken over as the Vice-Chancellor of University of Mysore w.e.f. 9th March, 1976.
2. Prof Amitabha Bhattacharya, Senior Professor of Mechanical Engineering, Jadavpur University and President of Institution of Engineers, has been appointed Director, IIT, Kanpur.
3. Dr. A. Ramachandran, Secretary to the Department of Science and Technology, Government of India, and former Director of IIT, Madras, has been unanimously elected Chairman of the International Conference on Education and Training of Engineers and Technicians.
4. Shri Dipak Sanyal has taken over as the Registrar of Rabindra Bharati University w.e.f. 1st February, 1976.
5. Shri V. N. Tripathi has taken over as the Registrar of Sampurnanand Sanskrit Vishwavidyalaya w.e.f. 27th February, 1976.
6. Shri P. C. Mital has taken over as the Registrar of Allahabad University w.e.f. 20th March, 1976.
7. Dr. B. M. Singh has taken over as the Registrar of Meerut University w.e.f. 19th March, 1976.
8. Shri S. B. B. Singh has taken over as the Registrar of Agra University w.e.f. 20th March, 1976.
9. Dr. S. K. Goswami has taken over as the Registrar of Lucknow University w.e.f. 20th March, 1976.
10. Shri K. Janardhanan has taken over as the Registrar of IIT Bombay w.e.f. 18th March, 1976.
11. Shri B. K. Das has taken over as the Registrar of Mysore University w.e.f. 1st April, 1976.

Subscription Rates

Period	Inland (Rs.)	Abroad	
		Surface (Rs.)	Air (Rs.)
1 year	12.00	60.00	100.00
2 years	22.00	110.00	180.00
3 years	33.00	160.00	260.00
5 years	52.00	260.00	440.00
Single copy	1.25	5.50	10.00

The journal is mailed on 7th/8th of every month.

CLASSIFIED ADVERTISEMENTS

HIMACHAL PRADESH UNIVERSITY SIMLA-171005

"RECRUITMENT BRANCH" ADVERTISEMENT No 7/76

Applications on the prescribed form (obtainable free of cost by sending a self-addressed stamped envelope size 23x 10 cms) are invited for the following posts :-

1. Professor of Mathematics.
2. Associate Professor of Organic Chemistry, preferably with research experience in Organic Reaction Mechanism (Leave vacancy for 16 months)
3. Associate Professor in Bio-sciences (Zoology) with specialisation in Entomology -- leave vacancy for one year in the first instance.
4. Associate Professor of Extension Education
5. Floriculturist
6. Assistant Professor in Sociology in the Department of Agricultural Economics
7. Assistant Professor in German
8. Assistant Professor of Chemistry (Physical)
9. Assistant Professor in Political Science

Pay scales and essential qualifications

For Sl No. 1. In the pay scale of Rs. 1100-50-1300-60-1600 plus usual allowances as admissible under the University rules. Depending on outstanding qualifications, achievements and experience, candidates could be considered for the senior grade of Rs. 1600-100-1800, Ph.D. or an equivalent degree, five years' post-graduate teaching or five years' post-doctoral research in a University or a Research Institute, and distinguished research work.

For Sl No 2 to 5. In the pay scale of Rs. 700-50-1250 plus usual allowances as admissible under the University rules. Ph.D. or an equivalent degree, two years' postgraduate teaching or post-doctoral research in a university or a Research Institute, and distinguished research work.

For Sl No 6 to 9 : In the pay scale of Rs. 400-40-800-50-950 plus usual allowances as admissible under the University rules. Ph.D. or an equivalent degree in the subject or First class in all Board and University examination from High School Higher Secondary Examination up to the Master's degree in the subject or First class Master's degree in the subject with M. Phil. or an equivalent degree or Second Class Bachelor's Degree and Second Class in the Master's Degree with M. Phil. or an equivalent degree.

Note : The candidates who have

a ready applied for the post of Associate Professor of Extension Education in response to our advertisement appeared earlier are requested to apply again on the prescribed form available with the undersigned. Application fee for this post, of Rs. 7.50 in the shape of Indian Postal Orders if already remitted need not be sent again but counterfoils of the postal orders may please be enclosed along with fresh applications.

Particulars of specialisation should be supported by published work.

Higher start in the grade is admissible on the basis of special qualifications and experience.

The Executive Council may, if necessary, relax the qualifications on the recommendations of the Vice-Chancellor or the Selection Committee, as the case may be.

A person applying for more than one post should send a separate application for each post.

Retirement Benefits : Either Contributory Provident Fund-cum-Gratuity (with 8-13% subscription by the employee and 6% contribution by the University) or G.P. Fund-cum-Pension-cum-Gratuity as per Central Universities Retirement Benefits Rules, 1967 as published by the U.G.C. 1970.

Persons from outside India may send their applications on plain paper giving particulars of date of birth, examinations passed (from High School onwards) with division and percentage of marks obtained in the various public examinations, research experience with a list of publications indicating the names and volumes of the journals in which published, teaching and other experience and names with complete postal addresses of two distinguished scholars who may be knowing fully about the work of the candidate and one of whom must be the Head of the Institution, last served.

Applications complete in all respects (along with attested copies of all the examinations passed from High School onwards) together with a crossed postal order for Rs. 7.50 (not applicable in case of those applying from outside India), drawn in favour of Finance Officer, H.P. University, Simla-171005, should reach the undersigned by the 25th May, 1976 positively under registered cover.

Incomplete applications and which are received after the due date may not be entertained.

Dated : 22nd April 1976

D.C. Pant
Officer-in-Charge Recruitment

INDIAN INSTITUTE OF
TECHNOLOGY, KHARAGPUR
Advertisement No. R/10/76.

Applications are invited on plain paper

stating Name, Father's Name, Present and Permanent Address, Age, Qualifications & Experience in detail, Nationality etc for the following temporary posts in the Jersey Bull Mother Farm Project sponsored by Indian Dairy Corporation at I.I.T., Kharagpur. The posts are temporary during the continuance of the Project.

POSTS :

I PROJECT MANAGER :

Scale of pay : Rs. 700-50-1250 - (unrevised) plus D.A. D.P. etc. as admissible.

Age : About 40 years.

Qualifications :

Essential :

(i) Should be Graduate in Agriculture with specialization in Animal Husbandry and Dairying from a recognised University Institute. (ii) Should have minimum experience of about 15 years of dairy farm management of which about 10 years of crossbreeding work in a Cattle Breeding Farm and Milk Production Programme. (iii) Experience of ten years of holding an independent charge of and running an organised dairy farm of cross breed (exotic inheritance) animals. (iv) Experience of fodder production, processing and storage on a modern mechanised fodder farm.

Desirable :

(1) Experience of conducting on Bovines with liquid and frozen semen.
(2) Experience of handling processing and distribution of milk.

II VETERINARIAN :

Scale of pay : Rs. 650-30-740-35-810- ER-35-880-40-1000- ER-40-1200 (Revised) plus D.A. as admissible.

Age : About 35 years

Qualifications :

Essential

(i) Graduate in Veterinary Science of recognised University/Institute. (ii) Experience of at least ten years in preventive and curative treatments. (iii) Experience of handling and treatment of Exotic animals for seven years. (iv) Specialised knowledge in obstetrics and Gynaecology of animals.

Desirable :

(1) Advanced Higher training in Veterinary Science.

(2) Experience of Organising a Veterinary Dispensary.

Last date for submission of Application to the Registrar I.I.T., Kharagpur is the 19th May, 1976.

UNIVERSITY OF RAJASTHAN JAIPUR

ADVERTISEMENT NO. 1/76

Applications are invited (through proper channel in case of those already in employment), so as to reach this office

on or before the 24th May, 1976, in the prescribed form available from the Registrar's Office on pre-payment of Rs. 4/- (Rs. 3/- extra in case required by post) for the under mentioned posts :—

- (a) 1. **Professors:**— Mathematics-1, Zoology-1, Economics-1, English-1, Geography-1, Hindi-1, History and Indian Culture-1, Political Science-1, Public Administration-1, Sanskrit-1, Sociology-1, Law-1, in the grade of Rs. 1100-50-1300-60-1600
2. **Readers:** Botany-3, Chemistry-5, Physics-3, Geology-1, Zoology-2, Adult Education-1, Drawing and Painting-1, Economics-3, English-3, Geography-1, History and Indian Culture-2, History of Science-1, Music-1, Philosophy-2, Psychology-1, Political Science-3, Public Administration-2, Sanskrit-1, Home Science-1, Sociology-1, Urdu-1, Law-2, Accountancy and Business Statistics-2, Business Administration-2, Economic Administration and Financial Management-1, Electron Microscopist-1 in the grade of Rs. 700-50-1250
3. **Lecturers:** Botany-15, Chemistry-14, Geology-2, Mathematics-3, Zoology-7, Drawing and Painting-5, Economics-4, Geography-6, History & Indian Culture-3, Home Science-1, Foreign Languages-French-1, Russian-1, Library Science-6, Music-3, Philosophy-2, Psychology-8, Political Science-4, Public Administration-3, Sanskrit-3, Sociology-3, Urdu-4, Law-13, Accountancy and Business Statistics-5, Business Administration-7, Economic Administration and Financial Management-5 and Hindi-1, in the grade of Rs. 400-40-800-50-950.

Note :— The revision of the grade of all the above posts is under consideration of the State Government.

4. **Research Associates :** History and Indian Culture-2, English-1, Chemistry-2, Sanskrit-1, in the grade of Rs. 400-40-800-50-950.
5. **X-Ray Analyst (Geology)-1, Micro-Analyst-1, (Chemistry) in the grade of Rs. 400-40-800-50-950**
- (b) **Jain Studies**
Professor-1, Lecturer-1, Research Associates-2
- (c) **Department of Physical Education**
Directors-2, in the grade of Rs. 400-40-800-50-950
- (d) **South Asia Studies Centre**
Professor-1, Readers-2, Lecturers-3, (Research Associates-5, for the tenure period of three years)

(e) **Institute of Correspondence Studies**

Director-1, Readers-4, (Political Science-1, History-1, Commerce-2), Lecturers-14 (Political Science-5, History-5, English-1, Commerce-3)

(f) **Institute of Business Management (Podar Institute)**

Professor-1, Reader-1, Lecturer-1 (Case Analyst-1) in the grade of Rs. 400-40-800-50-950.

(g) **NON TEACHING POSTS :**

(a) Deputy Registrars-2, Administrative Secretary to the Vice-Chancellor-1, in the grade of Rs. 700-40-1100

(b) Assistant Registrars-6, Public Relation Officer-1, Statistician-1, Co-Ordinator-1, (Examination Reforms Cell), Psychological Counsellor-1, Collator-1 in the grade of Rs. 400-30-640-40-800.

Details of qualifications etc. may be obtained alongwith the prescribed application form or separately as the candidate may desire. Benefits of Provident Fund, Additional D.A. and other allowances will be admissible as per rules of the University. Candidates desiring to apply for more than one post must send their separate applications for each post. Candidates will be called for interview at their own expenses. Persons who have already applied in response to our advertisement No. 274 should also apply afresh. Canvassing in any form will be a disqualification.

(i) The University reserves the right to alter the number of posts in any cadre or subject.

(ii) It will be open to the University to consider the names of suitable candidates who may not have applied.

(iii) Higher start may be given to deserving candidates.

(iv) In exceptional cases relaxation in the requirement of experience may be made by the Selection Committee.

I P Vaish
REGISTRAR

SAMBALPUR UNIVERSITY
JYOTI VIHAR : BURLA

Advertisement No. 19465 TDS
Dated the 28-4-76

Application in the prescribed forms are invited for the following Posts in the P.G. Department of Sambalpur University as stated below.

1. Professor — One in Economics
2. Reader — One in Economics

Scales of pay
Professor—Rs. 1100-50-1300-60-1600/-
Reader —Rs. 700-50-1250/- (The pay scales are likely to be revised)

Age of retirement Sixty years

1. **Qualifications for the Post of Professor of Economics**

(i) At least a 1st or High Second Class Master's Degree in the Subject with specialisation in Econometrics or Mathematical Economics.

(ii) A Doctorate Degree or Published work of equivalent Standard.

(iii) Experience of conducting and guiding Research work for a considerable period.

(iv) Independent published work of High Standard in addition to requirements in (ii) above.

(v) Teaching experience for at least ten years in a college or University with atleast 7 years experience in teaching P.G./Honours classes.

2. **Qualification for the post of Reader in Economics**

(i) At least a first or High Second Class Master's Degree in the subject with specialisation in Public Finance.

(ii) Doctorate Degree or Published work of equivalent Standard

(iii) Independent Published Research work in the journals of International repute

(iv) Capacity to guide Research Work.

(v) Teaching experience for atleast 8 years out of which 5 years must be in P.G. Honours teaching in a college or University

A Professor may also be appointed on a contract basis for a specified period.

The posts carry with usual Dearness allowance as would be sanctioned by the University from time to time

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 10/- (Rupees Ten) only. Candidates intending to receive forms by post are required to send

(a) Crossed Postal Order of Rs. 10/- payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla (b) a self addressed envelope (23 cm x 10 cm) with postage stamps worth Rs. 2/- affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY" superscribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of applications in the Office of the University at Jyoti Vihar, Burla, Sambalpur, (Orissa) is 30.5.76. The candidates will be required to appear for an interview before a Selection Committee at their own expenses.

All Communications should be addressed to the Registrar by designation only.

Those who have applied earlier in response to advertisement No. 11159/TDS dt. 19.2.76, need not apply again.

G P Guru
REGISTRAR

GURU NANAK DEV UNIVERSITY
Amritsar

Advertisement No. 9/76

Applications are invited for the following posts on prescribed form obtainable from office of the Registrar, Guru Nanak Dev University, Amritsar by making a written request accompanied by a self-addressed stamped envelope of 23 x 10 cms. so as to reach this office by 20th May, 1976 from persons residing in India and by 25th May, 1976 from persons residing in foreign countries alongwith crossed postal order(s) for Rs. 7.50 for the posts at Sr. No. 1, 2, 3, and 4 and Rs. 5/- for posts at Sr. No. 5 and 6 drawn in favour of the Registrar, Guru Nanak Dev University, Amritsar. (Besides allowances admissible under the rules, higher starting salary may be given

depending upon qualifications & experience).

1. Professors (Grade Rs 1500—60—1800—100—2000—125/2—2500) of Chemistry, Physics and Sociology & Applied Sciences.
2. Readers (Grade Rs. 1200—50—1300—60—1900) in Chemistry, Biology, Psychology, English, Political Science, History, Physics, Law, Sociology, Economics, Punjabi, Mathematics, Punjabi Language, Literature & Culture and Guru Nanak Studies
3. Lecturers (Grade Rs. 700—40—1100—50—1600) in Biology, Chemistry, English, Political Science, History, Physics, Sociology, Economics, German, Russian, Persian, Mathematics, (Statistics), School of Planning, Punjabi Language, Literature & Culture and Guru Nanak Studies
4. Curator (Grade Rs 400—40—800—50—950) in Biology
5. Research Assistants (Grade Rs 300—25—350—25—400—30—610—30—640—40—800) in Biology and Punjabi language Literature & Culture
6. Research Fellows (Rs 400 fixed) in Psychology, Punjabi, Mathematics and Punjabi Language, Literature & Culture

Qualifications : For the posts of Professors, Readers & Lecturers (i) Consistently good academic record with 1st or high 11nd class (b+) Master's degree in a relevant subject or an equivalent degree of a foreign university. (ii) Either the degree of Ph.D. or an equivalent research degree or published research work of a high standard. (iii) About ten years' experience of teaching M.A./M.Sc. classes and guiding research in case of Professors about 5 years experience in case of Readers and post-theses research work, and teaching research experience will be an additional qualification for the posts of Lecturers. (iv) Knowledge of Punjabi and a foreign language other than English will be an additional qualification.

For the post of Reader in Laws Essential : (i) Doctorate in Laws. (ii) University Law teaching experience for at least five years. Desirable : (i) Specialisation in Labour Laws Jurisprudence (ii) Published work.

For the posts of Readers in Punjabi Language, Literature & Culture Essential : (i) First or Second Class Master's Degree of an Indian University or equivalent qualification of a foreign university in subjects mentioned below.

For the First Post : Sanskrit/Prakrit Apabhramsa / Comparative Philology with the proviso that the candidate must be thoroughly conversant with Punjabi Language and its script.

For the 2nd Post : Punjabi and/or English with the proviso that an M.A. in one subject must have an adequate knowledge of the other. (ii) About five years' experience of teaching post-graduate classes and/or guiding

INDIAN SCHOOL OF MINES
DHANBAD—826004

No : 615060/76 **Dated the March 26, 1976**

Direct Admission—1976

The Indian School of Mines, a deemed university, invites applications for direct admission to the 3rd year of its 5-year programme leading to the award of M. Sc. degrees in Applied Geology. Only a limited number of seats are available.

Prescribed qualification : Candidates must have passed the B. Sc. degree examination of a recognised university with Geology, and any two of the following subjects : Physics, Chemistry and Mathematics and Higher Secondary or equivalent examination with Physics, Chemistry, Mathematics and English. Candidates appearing in the B. Sc. examination are also eligible to apply but must produce necessary evidence of having passed the examination by June 15, 1976. Prescribed application forms and memorandum of Information may be obtained on payment of Rs. 3/- by Money Order payable to the Registrar, Indian School of Mines, Dhanbad 826004. Requests for application forms must clearly specify that the candidate is seeking admission to 3rd year programme in Applied Geology. Completed application forms along with marks sheets of all examinations passed must reach the undersigned latest by May 31, 1976

(M. S. RAMAMURTHY)
REGISTRAR

research (iii) Either the degree of Ph.D. or equivalent research degree or published research work of a high order relating to any major field of Punjabi language literature culture

Preferable For the First Post : specialisation in Entomology, Lexicography, Grammar. Some knowledge of dialects of the areas adjoining the present day Punjab. For the second post : Acquaintance with the fundamentals of Aesthetics, Criticism

For the post of Reader in Guru Nanak Studies : (i) First or second class Master's degree of an Indian university or equivalent qualifications of a foreign university in Philosophy or Comparative Religion; (ii) Either Ph.D. degree or equivalent research degree or published research work of high standard preferably on any philosophical aspect of Gurus or Bhagats included in Sri Guru Granth Sahib. (iii) About five years experience of teaching postgraduate classes and/or guiding research. (iv) Proficiency in Sanskrit, Sikh Literature and at least one foreign language other than English will be an additional qualification

For the posts of Lecturers in School of Planning Essential : (i) B.Arch or B.E. (Civil) or any other equivalent qualification of a recognised university institution; (ii) A postgraduate degree or diploma in Town and Country Planning or in Landscape Architecture. Desirable : (i) Teaching experience; (ii) Membership of the Institute of Town Planners (India)

For the posts of Lecturers in Punjabi Language, Literature and Culture :

For the first post : Essential : A first or second class Master's degree of an Indian University or equivalent qualification of a foreign university in subjects mentioned below :

History of Art Culture Anthropology with a good knowledge of Punjabi or a Master's degree in Punjabi (at least Second Class) with some specialization in Art and Culture Folklore

Preferable : (i) Teaching experience of Degree Postgraduate classes for at least three years, (ii) Good knowledge of Literary Criticism and or of Fundamentals of Aesthetics. (iii) Some experience (practical) of Photography

For the second post : Essential Master's degree in Punjabi (First or Second class) The candidate must be thoroughly conversant with the art of editing, vetting, lexicography, preparing indexes and bibliographies and should have at least 10 years practical experience of these fields (Note : Educational qualifications relaxable in case of persons holding a Ph.D. degree). **Preferable :** (i) Proficiency in reading old manuscripts in Gurmukhi as well as Persian Scripts; (ii) Some knowledge of book production and proof reading; (iii) Some practical experience of Translation.

For the posts of Lecturers (Three) in Guru Nanak Studies : Essential : (i) Doctorate in Faculty of Languages (ii) Master's degree in Urdu, first or second division; (iii) Experience of translating high medieval Punjabi or Hindi Literature into Urdu; (iv) Thorough knowledge of the Sikh Scrip-

tures. Desirable : Proficiency in Sanskrit/Hindi or Persian.

Essential for One Post : (i) Thorough lexical and grammatical knowledge of the text of Guru Granth Sahib and other Sikh literature; (ii) Experience of Study in Traditional Exegetic schools such as that of the late Gyani Gurbachan Singh Khalsa; (iii) Published research work of high standard; (iv) Experience of teaching or katha of Guru Granth Sahib in an established institution. Desirable : Knowledge of Urdu Persian Hindi Sanskrit.

For the post of Curator in Biology : (i) A good academic record with a first or high second class Master's degree in Botany/Zoology; (ii) A minimum of two years research experience in Taxonomy.

For the post of Research Assistant in Biology : (i) A good academic record with a first or high second class Master's degree in Biology; (ii) A minimum of two years research experience preferably in Cell Physiology.

For the post of Research Assistant in Punjabi Language, Literature and Culture : M.A. (At least second class) in Punjabi with an aptitude for research in Punjabi in Medieval Literature. Preference will be given to those who can work in field, read manuscripts and have some published research work in the field.

For the posts of Research Fellows : (i) First or high Second Class Master's Degree in the subject concerned with a good academic record; (ii) Aptitude for research.

For Research Fellows in Punjabi Language, Literature and Culture : (i) First or high second class Master's degree in Punjabi with a good academic record; (ii) Aptitude for research.

Specialization in Chemistry : For Professor—Organic or Physical Chemistry. Persons having research experience in heterocyclics or quantum mechanics shall be preferred. For Reader—specialization in Analytical Chemistry is essential. For Lecturer—Quantum mechanics Polymer, Analytical Chemistry and Bio-organic Chemistry.

Specialization in Physics : Experimental solid state physics/modern spectroscopy including magnetic resonance and high resolution spectroscopy for the post of Professor ; modern spectroscopy and experimental solid state Physics for the post of Reader ; Nuclear theory, solid state theory, experimental solid state Physics and Spectroscopy for the post of Lecturers.

Specialization in Biology: (i) Ecology/Animal/Physiology / Plant Physiology/ Experimental Embriology/Bio-Chemistry (Animal) for the posts of Readers ; Plant systematics and genetics for the posts of Lecturers.

Specialization in Psychology : (i) Experimental Educational Psychology; (ii) Mathematical Psychology & Multivariate analysis ; (iii) Learning.

Specialization: for the post of Reader in Mathematics /Algebraic Topology,

Functional Analysis/Harmonic Analysis/Differentiable manifolds.

Additional Qualification for the post of Lecturer in Mathematics (Statistics) : Knowledge of Computer programming / Operational research/ Bio-Statistics Econometric.

Specialization for Reader in History: Modern Indian History.

Specialization for Lecturer in History: Medieval Indian History. Working knowledge of Persian (desirable).

Specialization for Reader in English: Doctorate in Linguistics

Bharpur Singh
REGISTRAR

UNIVERSITY OF RAJASTHAN JAIPUR

ADVERTISEMENT NO. 2/76

Applications are invited (through proper channel in case of those already in employment) so as to reach this office on or before the 31st May, 1976 in the prescribed form available from the Registrar's Office on prepayment of Rs. 4/- (Rs. 3/- extra in case required by post) for the under mentioned temporary posts :—

1. Professors (in the grade of Rs. 1100-50-1300-60-1600)

(a) Chemistry (Inorganic)-1.

(b) History and Indian Culture-1

Essential qualifications : A first or second class Master's degree of an Indian University or equivalent qualification of a foreign University in the subject concerned, (ii) either a research degree of a doctorate standard or published work of a high standard, and (iii) ten years experience of teaching at a University or a college, or ten years post doctoral research experience and considerable independent published research work and some experience of guiding research.

2. Reader in History (in the grade of Rs. 700-50-1250) Essential qualifications: A first or second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the subject (ii) either a research degree of a doctorate standard or published work of a high standard, and (iii) five years experience of teaching at a University or a College or five years post doctoral research experience and independent published research work and some experience of guiding research. Desirable : Knowledge of Modern History.

Note :—the revision of the grade of the above posts is under consideration of the State Govt.

Benefit of Provident Fund, Additional D.A. and other allowances will be admissible as per rules of the University. Candidates desiring to apply for more than one post must send their separate applications for each post. Candidates will be called for interview at their own expenses.

Persons who have already applied in response to our advertisement No. 2/76 should also apply afresh. Canvassing in

any form will be a disqualification.

- (i) The University reserves the right to alter the number of posts in any cadre or subject
- (ii) It will be open to the University to consider the names of suitable candidates who may not have applied.
- (iii) Higher start may be given to deserving candidates.
- (iv) In exceptional cases relaxation in the requirement of experience may be made by the Selection Committee.

L.P. VAISH
REGISTRAR

SAMBALPUR UNIVERSITY JYOTI VIHAR : BURLA

Advertisement No 18443/TDS.

dated the 21-4-76

Applications in the prescribed forms are invited for the following post in P.G. Department of Biological Sciences of Sambalpur University

1. Name of the post : Lecturer in Biological Sciences
2. Nature of the post : Temporary
3. Scales of pay : 400-40-800 50 950 (Likely to be revised)
4. Age of retirement : 60 years
5. Qualification :
 - i) At least a first or high second class Master's Degree in Biological Sciences (Botany Stream Botany with atleast 55% of marks
 - ii) Teaching research experience for atleast two years
 - iii) Candidates with Ph. D degree will be preferred

The post carries with usual Dearness allowance as would be sanctioned by the University from time to time

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 10/- (Rupees ten) only. Candidate intending to receive forms by post are required to send (a) Crossed Postal Order of Rs. 10/- payable to the Finance Officer Sambalpur University, Jyoti Vihar, Burla (b) a self addressed envelope (23 cm x 10 cm) with postage stamp worth Rs. 2/- affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY" super-scribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of applications in the office of the University at Jyoti Vihar, Burla, sambalpur, (Orissa) is 17.5.76. The candidates will be required to appear for an interview before a Selection Committee at their own expenses.

All communications should be addressed to the Registrar by designation only.

REGISTRAR

SAURASHTRA UNIVERSITY

Applications in the prescribed

forms are invited for the Posts of (I) **PROFESSORS** (Pay Scale : Rs. 1100-50-1300-60-1600) in (1) Bio-Sciences (Basic degree in Botany, Zoology or Experimental Biology. Specialization in Physiology of Plants/animals with special reference to country's needs and stresses), (2) Chemistry (Inorganic/Physical/Theoretical), (3) Mathematics, (4) Economics (preferably in Development Economics), (5) History, (6) Sociology; (II) **READERS** (Pay Scale Rs. 700-50-1250) in (7) Bio-Sciences (Basic degree in Botany, Zoology or Experimental Biology. Specialization in Cytogenetics, environmental Biology including Behavioral Ecology, Morphology and Embryology of plants, animals, Marine/algal/fish resources), (8) Chemistry (preferably in marine inorganic), (9) Gujarati (preferably in Literary Criticism/Folk Literature Linguistic Research), (10) Economics (preferably in Quantitative Management), (III) **LECTURERS** (Pay-Scale : 400-40-800-50-950) in (11) Bio-Sciences (Basic degree in Botany, Zoology or experimental Biology Specialization in Cytogenetics, environmental Biology including Behavioral Ecology, Morphology and Embryology of plants animals, marine algal fish resources and Systematics of Plants or animals, Cell Biology, Bio-physics and Bio-Chemistry, (12) Chemistry (Organic/Physical), (13) Mathematics (14) Gujarati (preferably in Literary Criticism Folk Literature (15) Economics, (16) History, (17) Sociology

The pay Scales are likely to be revised.

The posts are permanent and carry benefit of Contributory Provident Fund as per University rules. Dearness Allowances and House Rent Allowance will be paid as per University rules. Higher initial salary in the scale may be considered in case of Exceptionally qualified and experienced persons. Qualifications and experience relaxable in special cases. Candidates in employment must submit their application through their present employer. Candidates not knowing Gujarati will be required to pick up Gujarati within a reasonable period. Age ordinarily not exceeding 55 years.

Application forms along with detailed requirement of qualifications and experience for the above posts will be available from the Registrar, Saurashtra University, University Campus, Kalawad Road, Rajkot - 5, on sending a self addressed envelope of the size of 23 cm x 11 cm with postage stamps worth Rs. 1.15

Applications (seven copies) accompanied by Indian Postal Order for Rs. 5/- crossed in favour of Registrar, Saurashtra University, should reach this office on or before 26th May, 1976.

V.M. Desai
REGISTRAR

TATA INSTITUTE OF SOCIAL SCIENCES SION-TROMBY ROAD, DEONAR, BOMBAY 400 088

Applications in the prescribed form are invited for the following posts :

Professor of Social Sciences :—One permanent post in the scale of Rs. 1500-60-1800-100-2000-125/2-2500 plus other allowances as per Institute rules. **Qualifications and Experience** :—A Doctor's Degree or Published Work of an equally high standard and consistently good academic record with I or II class Master's Degree in Social Sciences; at least 10 years teaching research experience at post-graduate level; and/or professional work experience in responsible position with acknowledged contribution in the field of Social Sciences. **Nature of Duties** :—The candidates applying for the post should have an interest in the application of his particular discipline to one or more of the following fields—Education, Health, Housing and Social Welfare. Selected candidate will be expected to engage in teaching, research, research guidance and field work coordination for M.A. students. (Those who have applied to our earlier advertisement need not apply).

Lecturer in Labour Legislation :—One permanent post, pay scale Rs 700-40-1100-50-1600 plus admissible allowances as per Institute rules. **Qualifications and Experience** :—A doctor's Degree or Published Work of an equally high standard and consistently good academic record with I or II class Master's Degree or Post-graduate Diploma in Personnel Management and Labour Welfare. A Degree in Law, two years teaching research, professional experience either in Personnel Management or Labour Law, age 25 to 40 years. **Nature of Duties** : Candidate selected will be expected to engage in teaching, research, guidance, field work supervision and other work entrusted by the Head of the Department.

Preference will be given to SC/ST candidates subject to their being found suitable by the Selection Committee. Persons in employment should apply through their employers. Candidates called for interview will have to appear for interview in Bombay and out station candidates will be paid First Class return fare for post No.1 and second class return fare for post No.2 by the shortest Railway route. Candidates appointed will be eligible for P.F. and other benefits as per Institute rules on confirmation after probationary period. Prescribed forms may be obtained from the Registrar, Tata Institute of Social Sciences, Sion-Trombay Road, Deonar, Bombay 400 088 either personally or by sending a self-addressed envelope (23½ x 10 cms) with stamps worth 70 Paise. The last date for receipt of completed applications in the prescribed form is May 15, 1976.

N. Krishnamoorthy
REGISTRAR

SAMBALPUR UNIVERSITY JYOTI VIHAR : BURLA No. 19656/TDS. Dated. 1-5-76 Advertisement

Applications in the prescribed form with attested copies of marksheets, certificates of the examinations passed are invited for the post of Reader-in-Law in the Lajpat Rai Law College, Sambalpur.

- I. Scale of pay—Rs. 700-50-1250
- II. Age of Retirement—Sixty years.
- III. Qualification and experience

(i) At least a Second Class Master's Degree in Law with teaching and/or professional experience of 8 years at the Bar out of which at least three years of teaching experience in Law.

(Experience in the Judicial Service will also be counted as professional experience.)

The post carries usual dearness allowance as would be sanctioned by the University from time to time.

Candidates for the post of Reader should mention whether they are willing to be considered for the post of lecturer if required to do so and in that case they should mention the minimum salary acceptable to them.

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 10/- (Rupees ten) only. Candidates intending to receive forms by post are required to send (a) Crossed Postal Order of Rs. 10/- payable to the Finance Officer, Sambalpur University Burla (b) a Self addressed envelop (23 cm x 10 cm) with postage stamp worth Rs. 2/- affixed to it with the words "APPLICATION FORM FOR THE POST OF READER IN L. R. LAW COLLEGE" superscribed on it. Money Order, Cheque will not be entertained.

The last date of receipt of applications in the office of the University, Jyoti Vihar, Burla is 31.5.1976.

The candidates will be required to appear for an interview before a selection committee at their own expense.

All communications should be addressed to the Registrar, by designation only.

The selected candidates must join within two months from the date of the issue of appointment order.

Suitable persons may be appointed on contract basis on a higher initial start if it is deemed desirable in the interest of the University.

Sd/- G. P. Gura
REGISTRAR

THE UNIVERSITY OF BURDWAN WEST BENGAL ADVERTISEMENT NO. 14 DATED THE 30TH APRIL, 1976

Applications in prescribed form are invited for the following posts in approved scale of pay viz. (i) Professor—Rs. 1500—60—1800—100—2000—125/2—2500, (ii) Reader—Rs. 1200—50—1300—60—1900, (iii) Lecturer—Rs. 700—40—1100—50—1600— with admissible

allowances as and when sanctioned.

A. Department of English : (i) Professor—One (ii) Reader—One.

B. Department of History: (i) Reader—One

C. Department of Philosophy: (i) Reader—One

D. Department of Political Science: (i) Reader—Two

E. Department of Commerce: (i) Reader—Two

F. Department of Physics: (i) Reader—Two (ii) Lecturer—One

G. Department of Zoology: (i) Professor—One (ii) Reader—Three.

H. Department of Mathematics: (i) Reader—Two (ii) Lecturer—One

I. Department of Geography: (i) Reader—One (ii) Lecturer—Two

J. Department of Botany: (i) Professor—One (ii) Reader—One

Minimum Qualification:

1. (a) A Doctor's Degree or published work of an equally high standard and (b) Consistently good academic record with 1st or high 2nd Class (B+) Master's Degree in the relevant subject or an equivalent degree of a foreign University.

2. Additional Requirements.

For Professorship:—(i) At least ten years teaching experience in Post-graduate Class (ii) Competence to plan

and supervise Research Project (iii) Publication of sufficient merit for Readership:—(i) At least five years' teaching experience in Postgraduate Class (ii) Ability to supervise Research work (iii) Publication of sufficient merit.

Specialisation Required:

A. (i) Specialisation in English language teaching with a strong background in English Linguistics or specialisation in English Linguistics with good qualifications in E. L. T. or specialisation in Linguistics related to E. L. T. with good qualification in E. L. T.

A. (ii) Specialisation in Comparative Literature

B. (i) Specialisation in Medieval Indian History.

C. (i) Specialisation in Symbolic Logic or Philosophy of Science, or Analytical Theory of Knowledge

D. (i) Specialisation for one post in International Relations and for the other in Public Administration.

E. (i) Specialisation for one post in Business Statistics/Accounting/Business Finance; For the other post Managerial Economics/Labour Economics/Industrial Relations

F. (i) Specialisation for one post in Theoretical Physics; for the other post

Experimental Nuclear Physics/Nuclear Instrumentation

G. (i) Preference will be given to candidates specialised in Parasitology or Fish and Fisheries (ii) Preference will be given to candidates specialised in Ecology/Cytogenetics/Endocrinology/Entomology.

H. (i) For one post specialisation in Applied and for the other in Pure Mathematics. (ii) Pure Mathematics: Specialisation in Algebra/Operations Research/Computer Science/Numerical Analysis.

I. (i) Specialisation in Economics and or Social Geography. (ii) Specialisation in Population Geography for one and in Economic Geography for the other post.

J. (i) Specialisation in Pathology of Crops/Agricultural or Industrial Microbiology/Crop Breeding/Crop Physiology (ii) Specialisation in Plant Physiology, preferably in Physiology of Aging

For application form and detailed information apply to the office of the Registrar with a self-addressed stamped (0-40 P) envelope (9" x 4").

Last date for submission of applications with fees is 11th June, 1976.

A. K. Banerji,
REGISTRAR

Additions to A.I.U. Library

April, 1976

Altbach, Philip G. *Student politics in America* New York, McGraw-Hill [c 1974] viii, 249p.

Ashby, Eric. *Adapting universities to a technological society*. San Francisco, Jossey-Bass [c 1974] xvi, 158p.

Benson, Charles S. and Hodgkinson, Harold L. *Implementing the learning society*. San Francisco, Jossey-Bass, 1974 xvii, 147p.

Carnegie Commission on Higher Education, Berkeley. *Priorities for action: Final report*. New York, McGraw-Hill, 1973 x, 243p.

Chaffer, John and Taylor, Lawrence. *History and the history teacher* London, Allen and Unwin, 1975, 127p.

Chandy, Jacob. *Physician and the society* Delhi, Publications Division, 1967. vi, 46p.

Cohen, Arthur M. and others. *College responses to community demands*. San Francisco, Jossey-Bass, 1975. xvii, 190p.

Daniels, A. and Yeates, D.A., ed. *Basic training in systems analysis*. New York, Pitman, 1969. xiii, 301p.

Edney, P.J. *Systems analysis of training* New York, Pitman, [c 1972] 257 p.

Freedman, M.B. *College experience*. San Francisco, Jossey-Bass, 1969. xviii, 202p.

Gangrade, K.D. *Dimensions of social work in India: Case studies*. Delhi, Marwah, 1976. 188p.

Henderson, Algo D. and Henderson, Jean Glidden. *Higher education in America*. San Francisco, Jossey-Bass, 1974. xii, 282p.

India, Ministry of Education and Social welfare *Scholarships for study abroad and at home* 1975. Delhi, Publications Division, 1975. vi, 79p.

Indian Institute of Public Administration, Delhi. *Personnel administration: The need for change*. Delhi, Author [c 1968] 197p.

Iqbal Narain and others. *Panchayati raj and educational administration*. Jaipur, Aalekh, 1976. iii, 331p.

Kabra, Kamal Nayan. *Political economy of brain drain: Reverse transfer of technology*. Delhi, Arnold-Heinemann, 1976. 190p.

MacFarquhar, Roderick. *Origins of the cultural revolution 3V V1—The contradictions among the people 1956-1957* New York, Columbia University press, 1974 xii, 439p.

Martorana, S. V. and Kuhns, Eileen. *Managing academic change: Interactive forces and leadership in higher education* San Francisco, Jossey-Bass, 1975. xviii, 218p.

Mehta, Prayag. *Managing motivation in education* Ahmedabad, Sahitya Mudranalaya, 1976. 242p.

Moore, William. *Blind man on a freeway: The community college administrator*. San Francisco, Jossey-Bass, 1971. xvi, 173p.

Owen, J. G. *Management of curriculum development* Cambridge, Cambridge University Press, 1973. 178p.

Pandey, Shreedhar Narayan. *Education and social changes in Bihar 1900-1921: A survey of social history of Bihar from Lord Curzon to non-cooperation movement*. Delhi, Motilal Banarsidass, 1975. vii, 275p.

Parikh, G. D., ed. *Crisis in higher education: Proceedings of a seminar, Bombay 1972* Bombay Leslie Sawhney Programme of Training for Democracy [c 1972] 118p.

Passi, B. K. ed. *Becoming better teacher: Microteaching approach*. Ahmedabad, Sahitya Mudranalaya, 1976. xiii, 351p.

Sarason, Seymour B. *Psychological sense of community: Prospects for a community psychology*. San Francisco, Jossey-Bass, 1974. xii, 290p.

Sevrak, Viadimir, comp. *Young in the revolution: Letters, diaries, documents, stories, photographs*. Moscow, Progress Publishers, [c 1973] 319p.

Smith, G. Kerry, ed. *Agony and promise: Current issues in higher education 1969*. San Francisco, Jossey-Bass, 1969. xvii, 282p.

Sundaram, P.S. and Shah, A.B., ed. *Education or catastrophe?* Delhi, Vikas [c 1976]. viii, 199p.

Unesco. *Education on the move: A companion volume to learning to be*. Paris, Author 1975. xi, 307p.

Vernon, P. E. *Intelligence and attainment tests*. London, University of London Press, 1960. 208p.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bandyopadhyay, Ramendranath. Some weaker types of compact spaces and some of their associated maps. University of Calcutta.
2. Bhattacharyya, Rabindranath. On some problems in internal ballistics. University of Calcutta.
3. Gupta, Ram Gopal. Numerical treatment of initial value problems in ordinary differential equations. I. I. T. Delhi.
4. Peeyush Chandra. Mathematical models for synovial joints. I. I. T. Kanpur.
5. Venkateswarlu, Garimella. Theoretical investigation of problems in reservoir engineering. South Gujarat University.

Physics

1. Agarwal, Sita Ram. Study of persistent internal polarisation in organic molecular crystals with special reference to zone-refined 1, 5 diaminonaphthalene. University of Saugar.
2. Aggarwal, Yatish Chander. Effects of different types of ionizing radiation on the haemopoietic tissue of mice exposed in the embryonal stage. Kanpur University.
3. Ahmad, S. A. Isotope shift studies in neodymium spectra. University of Bombay.
4. Aruna Prasad, G. Studies on the effect of electron binding on the incoherent scattering of gamma rays. Andhra University.
5. Bandyopadhyay, Pradip Kumar. Studies on the transport phenomena in gases and other related properties. University of Calcutta.
6. Deshmukh, Shrikant Vasant. A study of radio frequency discharges by double probe method. University of Poona.
7. Gangopadhyay, Swati. Studies on some topics in atomic and molecular scattering. University of Calcutta.
8. Grade, V. K. Physics of neutron stars. University of Bombay.
9. Joseph, Babu. Optical and electron-optical studies on some $M \times 2$ type transition metal dichalcogenide single crystals. Sardar Patel University.
10. Patel J.C. Measurement of absorption of radio waves in lower ionosphere. Gujarat University.
11. Saha, Bidhan Ch. Collision of electrons and positrons with atoms. University of Calcutta.
12. Saha, Samir Chandra. Studies on some topics in atomic and molecular collision processes. University of Calcutta.
13. Sengupta, Abhijit. Linear time varying and time invariant sequential machines: Identification and properties. University of Calcutta.

14. Srivastava, R. G. Ferromagnetic relaxation in magnetically ordered zinc ferrous systems. I.I.T. Bombay.

15. U. V. Kumar. Spectroscopic investigations on Nd^{3+} and Eu^{3+} in certain single crystals. I.I.T. Kanpur.

Chemistry

1. Brave, Madhuri Shamakant. Retention studies in alkali and alkaline earth-metal arsenates. University of Poona.
2. Bhatta, B.D. Studies on optical activity and chromatographic technique. Saurashtra University.
3. Choubey, Sachchida Nand. A study of transition metal complexes with thiopyruvic acid. Magadh University.
4. Date, Shrikant Gangadhar. Chemical reactions of bis-dimethylglyoximate-nickel (II) University of Poona.
5. Deshpande, R.S. Studies in natural pest control agents from Indian herbaceous plants. University of Bombay.
6. Devendranath Reddy, C. The condensation of phosphonic dichlorides and phosphorodichloridates with orthodiamines. Sri Venkateswara University.
7. Dewhare, Anil Ramkrishnarao. Thermodynamic properties of solutions: Adiabatic compressibility of polyelectrolytes. University of Poona.
8. Duttachoudhury, Malay Kanti. Thermodynamics of binary polar liquid mixtures. University of Poona.
9. Gogte, Vishwas Dattatreya. Studies on electric discharge radiolysis in aqueous solutions. University of Poona.
10. Gokhale, Ashok Mahadeo. Studies in nitrogen heterocyclic compounds. University of Poona.
11. Joshi, Chandrakant Ramkrishna. Metal chelates of juglones. University of Poona.
12. Kakde, Shreeram Narayanrao. Studies in growth and nutrition of Eri silkworm, *philosamia ricini*. University of Poona.
13. Katti, Hanumant Anantachar. Synthetic studies in the heterocyclic field. Karnatak University.
14. Khurana, Chander Kishore. A study of oxidation of some aldehydes by selenium dioxide. Indore University.
15. Maitra, Baijayanti. Stereocontrolled synthesis of diterpenoids and related natural products. University of Calcutta.
16. Prajapati, Shankarlal Purushottam. Studies in dihydroxydiaryls and other compounds. M.S. University of Baroda.
17. Rao, A. V. Studies on ultrafiltration membranes. Saurashtra University.

18. Raychandhuri, Syamal. Studies in the metallic Complexes of some tetra-substituted pyrozoles. University of Calcutta.

19. Rout, Dhaneswar. Studies on some pharmacologically active compounds including antispasmodics, antihistaminics, filaricides and amoebicides. Utkal University.

20. Satav, Jagannath Gangaram. Aspects of mitochondriogenesis in rat liver. University of Poona.

21. Seth, Manju. Synthesis and studies in biodynamic agents. Kanpur University

22. Shah, R.N. Synthesis and applications of carbamates for the modification of cellulose. Gujarat University.

23. Srinivasrao, Adapa. Chemical investigation of *Plumbago zeylanica*. Gujarat University

Earth Sciences

1. Bhale, Arvind Yeshawant. Petrology and structure of the Bhikia Sain area, Almora District, Uttar Pradesh. University of Poona.

2. Ghosh, Debabrata. Regional gravity and magnetic studies over Damodar Valley, Gondwana basins and the surrounding areas. I.S.M., Dhanbad.

3. Kulkarni, Shriram Raghunath. Study of Deccan trap basalt flows in Satara District. University of Poona.

4. Mukhopadhyay, Manoj. Relationship of gravity and seismicity to tectonics in North Eastern India. I. S. M., Dhanbad.

5. Pavanaguru, R. Geology of Veldurthi-Kalva mineralized belt, Kurnool District, A. P., India. Osmania University.

6. Phansalkar, Vijay Gurudas. Palaeontological studies of the acanthocerataceae from the upper cretaceous rock formations of Trichonopoly District, South India, University of Poona.

7. Sarkar, Bhagabati. Sedimentological studies in the Bhandar limestone. University of Calcutta

8. Shriharirao, Srigriraju. Hydrogeology of parts of the Deccan trap. University of Poona.

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5. Khémchandani, G. V. Pyrolysis of coal-like model substances. I. I. T. Bombay.

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Botany

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7. Subrahmanyam, Ayyagari. Studies on morphology, biological activities and cultural characters of some thermophilic fungi from Maharashtra. University of Poona.

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2. Bhohe, A. M. Studies with synthons. University of Bombay.

3. Ghoshal, Pramathanath. Synthesis of possible hypotensive agents, antihypertensive agents. University of Calcutta.

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3. Baldev Singh. Effect of irrigation and mulching on soil temperature and growth of forage maize, *Zea mays* (L.). Punjab Agricultural University.

4. Bapna Chain Singh. Genetic studies in sun flower, *Helianthus annuus* (L.) Kanpur University.

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13. Malik, Aftab Ahmed. Studies into physiological specialization of *Alternaria tritricina* on wheat. Bhagalpur University.

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1. Kaikini, Ashok Kumar Shripadrao. Studies on bovine gynaecology : Gonads and reproductive tract of berari buffaloes. Punjabrao Krishi Vidyapeeth.

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NEW PATTERN OF EDUCATION

(Contd. from page 4)

system of 3+2 (3 years of degree course and 2 years of P. G. course) may be continued simultaneously giving an option to the colleges for organisational reasons.

Such a scheme as this must grow out of the corresponding changes at the other lower levels of education especially at the 10+2 level. At present there are two approaches that are thought of about these two levels of education. One approach is to make these levels both academic as well as work oriented simultaneously. The other approach is to build two streams, one academic, the other vocational into one and the same level. Both these approaches are not feasible from the point of view whatever experience that we have accumulated from out of our previous experience such as multipurpose school experiment. So we should think of a more pragmatic and viable

University of Calcutta.

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system as an alternative to the above models. Here again, we have an opportunity of utilising non-formal out-of-school system of education to solve some of the problems that arise in the formal system. As a first step we should think of keeping academic and vocational training in two different institutional frame works with the clear objective of the academic training being used as a necessary input into the vocational training institutions. For every level of education starting from primary to +2 level, we should think of a corresponding level of vocational training which uses the academic training provided by the academic streams as their inputs. This system has two advantages (1) it provides a channel of diversification (2) it strengthens the standards of the academic training. We assume that a student entering into an academic stream at the primary level and continuing to progress in ~~the same~~ stream upto the graduate level will have in all probability the required aptitude and competence for the upgraded graduate programme.

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University News

Vocationalization in Agriculture
Medium of Instruction in
Technical Institutions

A CHRONICLE OF HIGHER EDUCATION & RESEARCH JUNE 1976 Re. 1.25



Karan Singh, Union Minister for Health and Family Planning, delivering the first Convocation of University of Jammu

- Changes Proposed in Medical Education
- ● Workshops for Grading System
- ● ● Revised Re-employment Rules

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF UDAIPUR UDAIPUR

Admission Notice (1976)

Applications are invited for admission to various programmes—Undergraduate, Post-Graduate and Doctoral in the University starting from July, 1976 :

I. College of Agriculture :

A (Udaipur Campus)

1 Ph.D. (by course work) :

- (a) Entomology, (b) Plant Breeding and Genetics, (c) Plant Pathology, (d) Agronomy, (e) Soil Science and (f) Horticulture

Note :—Two Research fellowships of the value of Rs 250 - P.M. in each department are awarded to sons and daughters of bonafide residents of the State of Rajasthan who fulfil the conditions as prescribed in the rules.

2 M.Sc. (Ag.)

- (a) Agronomy, (b) Entomology, (c) Horticulture, (d) Plant Breeding and Genetics, (e) Plant Pathology, (f) Soil Science and (g) Dairy Husbandry

Note :—The teaching in Soil Science will be done on an integrated basis at Udaipur and Jobner Campuses

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1. B.V. Sc. & A.H. —Four-year Course

2 M.V.Sc. :

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3 Ph.D. (by course work) :

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(ii) Farm Machinery Power and Processing Engineering.

IV. College of Home Science : Udaipur

1. B.Sc. (Home Science) : Four-year Integrated Course.

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V. School of Basic Sciences & Humanities : Udaipur

1 M.Sc.

- (a) Physics, (b) Chemistry, (c) Botany, (d) Zoology and (e) Mathematics

2 M.Com.

- (a) Accountancy and Statistics, (b) Business Administration and (c) Banking Management

3 M.A.

- (a) Drawing & Painting, (b) Economics, (c) English, (d) Geography, (e) Hindi, (f) History, (g) Philosophy, (h) Sociology, (i) Psychology, (j) Sanskrit, (k) Political Science, (l) Urdu and (m) Mathematics

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5 Bachelor of Library Science (B.Lib.Sc.) One Year Course

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NOTE: Eligibility, qualifications and other requirements for admission to the under-graduate and post-graduate programmes can be ascertained from the Information Bulletin supplied with the Application Form

The Information Bulletin alongwith the Admission Form can be had from the respective Deans of Colleges Director, School of Basic Sciences and Humanities, Udaipur on payment of Rs 2.50 (in person) and Rs 3.00 by post by sending a crossed Indian Postal Order in favour of the Dean Director of the College School concerned

Last date for receipt of applications in the offices of the Dean Director is 30th June, 1976

REGISTRAR

NORTH-EASTERN HILL UNIVERSITY, LOWER LACHAUMIER, SHILLONG

No F 1-21 ESTT 75

Dated, Shillong, The 19th May, '76

APPLICATIONS are invited from suitable candidates for the following positions in the North-Eastern Hill University

Name of Post	No of Post	Scale of Pay
1 Reader in Sociology	2	1200-50-1300-60-1900/-
2. Lecturer in Sociology	2	700-40-1100-50-1600/-

Qualifications :

For Reader and Lecturer Essential :

1 Ph.D. in Sociology or Social Anthropology from an Indian or a well-known foreign University or published work of equivalent standard

2 At least a good second class M.A. M.Sc. in Sociology or Social Anthropology from an Indian or a well known foreign University.

3 Ability to interact with other disciplines

Preferable : For Reader and Lecturer

1 Candidates who have specialised in the Sociology of Tribal Communities and candidates specialising in the North-Eastern Hill regions' communities will have an edge over others

2 Persons with research teaching experience in the following areas (i) Sociology of Development Planning, (ii) Sociology of occupations, (iii) Sociology of Knowledge

Experience : For Reader : Essential

At least five years post-graduate teaching experience or even year teaching cum-research experience

Experience : For Lecturer : Essential

At least two years post-graduate teaching experience or three years teaching cum-research experience

All Candidates at the time of appointment must not be more than 40 years in the case of Reader and 30 years in the case of Lecturer

Applications in the prescribed form obtainable from the office of the undersigned should reach him on or before the 30th June 1976 together with an Indian Postal Order for Rs 5.00 (Rs 2.50 for Scheduled Castes and Scheduled Tribe candidates drawn in favour of the North Eastern Hill University, Shillong) in payment of an application fee. Request for application form should be accompanied by a self-addressed envelope of the size of 10" x 4" affixing thereon 40 P. worth of stamps

Note

1. Persons in service should submit their applications through their employers

Candidates called for interview will have to appear before the Selection Committee at the office of the North-Eastern Hill University or at any place specified. The rate of travel allowance permitted by the Central Universities will apply

3 All appointments will be made subject to a period of probation

4. In case a candidate with Ph.D. or an equivalent published work is not available, the Selection Committee may recommend a candidate with consistently good academic record for temporary appointment, not exceeding a period of five years, during which the incumbent will have to obtain a Doctor's Degree.

5 The University reserves the right of relaxing any of the above conditions for special cases

T.K. Tochhawng,

Officer on Special Duty (Administration)
North-Eastern Hill University.

UNIVERSITY NEWS

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1976

*A Monthly Chronicle of
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*Opinions expressed in the articles
and reviews are individual and do
not necessarily reflect the policies
of the Association.*

Editor : ANJNI KUMAR

The Open University

Mr. T.S. Murthy in this article has reviewed the
radio talk of Mr. V. Ramachandran, Director
of Higher Education, Andhra Pradesh

An impressive phenomenon of the post independence era in the field of University Education is the tremendous growth of numbers. There is demand for more colleges and institutions of higher learning. Despite expansion of facilities on a large scale, there is an ever-increasing flood of students seeking admission in colleges. For certain courses of study, even first class students are denied admission either due to non-availability of seats or non-fulfilment of certain other conditions. In the traditional formal system of education, the student has to compulsorily put in certain percentage of attendance, study the prescribed books and strictly follow certain other rules laid down by the University. Even those who are very keen and anxious to pursue higher education and have the necessary financial backing are sometimes unable to secure admission in institutions of higher learning. There is no denying the fact that higher education is not within the reach of everybody. But in a democratic society, there should be equal opportunities to all. The explosion of knowledge requires an elastic education system which allows scope for experimentation and innovation.

The Open University is not only a major innovation but a revolution in the field of higher education. The observations of the Planning Committee of Britain's renowned Open University on the objects of this system are highly relevant. The Committee says : 'In the past limited opportunities for education, determined by social, economic and political factors, have resulted in a low educational attainment on the part of a vast number of individuals. This low level of attainment has been taken as firm evidence of limited innate ability, which in turn was held to justify an absence of any increase in educational provision. It is both unjust and unwise to ascribe the adventitious hazards of nature to alleged inherited defects-unjust to the individual, and unwise for society thus to deny the greatest educational opportunity to the greatest number of its citizens. For long regarded as a privilege of the few the opportunity to engage in higher education is at last becoming widely accepted as a basic individual right.

In these changes in recent years, science and technology have proved to be most powerful catalysts of educational demand and development. Moreover, education generally, and higher education in particular, is at one and the same time, a necessary condition of a modern technological society and a defence against its abuses. The two conditions—of securing on the one hand national economic viability through increased productivity and efficiency of mana-

(contd. on page 8)

Medium of Instruction in Technical Institutions

S. Muthukumaran

INTRODUCTION

Universal education sponsored and paid for by the State from out of public funds, is a relatively new phenomenon in all parts of the world. There are three main reasons for the introduction of universal education (Gerald Barry, 1965) :

- (i) Social pressures in the democratic countries called for right to free education.
- (ii) The complex machinery of the present industries require men with knowledge and skill for maintenance.
- (iii) The Administration of the modern State and Society requires a great army of literate workers to keep accounts and records and to carry the instructions to the citizens.

In this country, after independence, the establishment of a democratic Government and the implementation of a planned development programme by the popular Governments in the States and Centre lead to a demand for universal education for all the three reasons already referred. With this demand was associated the demand for the right to learn in the mother tongue. It was realised soon after independence that it might have been possible to rule the country through a small governing class speaking Persian under the Mughals or an English speaking civil service under the British Raj, but in a democratic independent India, this separation of the educated from the rest of the population would hardly do (Grant, 1971). Every one of the committees and commissions appointed by the Government of India since independence have consistently reiterated the necessity to introduce the vernaculars as the media of instruction in the Schools and Universities, as is evidenced by the references cited by even the foreign writers, who advocate the continuance of English (Julian Dakin et al, 1968).

In most of the countries of the world, whether developed or developing, the language used for instruction is the native language. It is only in India and some African States that a foreign language

is used as the medium of instruction. Experience in various countries have indicated the superiority and necessity to teach children in their mother tongue.

Studies by UNESCO have indicated that the child taught in foreign medium is disadvantaged (UNESCO, 1953).

In recent years, the necessity to reach the youngsters in their mother tongue have been realised in the USA and an Act was passed in 1967 providing for bilingual education. By this Act, students of Spanish origin are taught Spanish as the first language. English is taught as a second language. They are taught their ancestral culture and heritage. The teachers of their race are retained. This has led to a closer co-operation between the school and the house (Stone and DeNevi, 1971).

In Southern Mexico, experiments have shown that children read better, when first exposed to read in their native Indian language and later exposed to Spanish. Similar studies of Spanish children in New York showed that, those who were taught science in their mother tongue performed better (Stone and DeNevi, 1971).

According to the Russian Constitution, all nationalities have the right to their own language both for official use and in the schools (Deana Levin, 1959).

Nevertheless, discussions are held in this country even today, whether English can be replaced by the mother tongue as the medium of instruction

2. CHOICE OF THE LANGUAGE OF INSTRUCTION

Arguments for the mother tongue

The arguments for the mother tongue bring out the following advantages in studying through the mother tongue (Damodaran, 1974, Indian Institute of Science, 1972)

- (i) Gain knowledge in a natural manner.
- (ii) Learn quickly.
- (iii) Understand fully.
- (iv) Improve self respect.
- (v) Grasp well whatever is learnt.
- (vi) Learn with ease.
- (vii) Understand correctly.
- (viii) Instead of spending time in learning a language, the time will be better utilised for learning scientific truths.
- (ix) Relationship between the school and house will be strengthened.
- (x) Those who are not able to learn a foreign language may also gain higher education.

In spite of all these advantages, it has to be accepted that education through the mother tongue is not popular. Why is it so? It is reported that there is resistance from Puerto Ricans in USA to study in their mother tongue (Stone and Denevi, 1971). It is

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the experience in Russia that where Russian language schools and Kazakh schools are available, Kazakh parents send their children to Russian schools! This is so, because, better colleges are in Russian areas and a Kazakh boy has to compete with Russian boys for admission to such institutions. Therefore, from childhood the Kazakh boy starts going to Russian schools. These experiences indicate that the schools teaching in the mother tongue are not popular due to various reasons.

Arguments for English

The arguments for the continuance of English include the following points :

- (i) English is a world language. Only through English can knowledge be gained as fast as it is generated.
- (ii) The opportunity for jobs outside the State will be lost, if one studies through the regional language.
- (iii) After one of the regional languages grows sufficiently and is accepted as the link language, learning through English can be dropped.
- (iv) Even in Russia and Japan, learning of English language has been introduced recently.
- (v) There are not suitable words in the regional languages to express scientific thought.
- (vi) There are not enough textbooks in the regional languages
- (vii) Even the few books already published are of a low standard and tough to study.
- (viii) Precise scientific statements cannot be made in regional languages
- (ix) Scientific English and Science are common to all nations.

It is also often claimed that students, who read in English medium schools are better than those that study at the other schools. This statement, is obviously a partial statement, as it is well known that those belonging to well to do families and educated families are studying in English medium schools, whereas the others belonging to the poorer sections of the Society and uneducated families are found in the other schools. Further, a critical scrutiny will bring out the weak base on which the points in favour of English have been raised.

A student studying for a basic degree need learn only established facts. He need not learn such of those findings that are not widely accepted. Therefore, there should not be any difficulty in teaching through the mother tongue, the required subjects at the first degree level. At higher levels, it is now understood that it is not enough if one is familiar with the literature in English and it is generally recommended that one must make a global search of information before undertaking research. This naturally necessitates a familiarity with other modern languages

and literature essential. Therefore no special advantage accrues in studying in English.

In these days when there is unemployment in every part of the world, the chances of one obtaining a job outside his state are very remote, unless one is substantially above average. Such persons can easily adapt themselves to the new region and language in a short period. For the sake of these few, the vast majority need not be asked to learn through a foreign tongue.

Every effort must be made to promote the growth of a link language, which has to be learnt by those interested in joining the federal service.

It should also be realised that in telling one that he cannot use his mother tongue for learning science and technology, he is being told by implication that his mother tongue and the culture it represents are not worthy. Therefore, it follows his kith and kin and himself are of no worth. This naturally leads to a loss of self respect (Stone et al, 1971). It also splits the individual into two persons : A person who thinks in English for understanding Science and Technology and a person who thinks in his mother tongue for attending to his social needs. A conflict develops in due course. Mental development is harmed substantially in this process.

Further, the use of English divides the people into two nations, the few who have studied English and decide the fate of the nation, and the vast majority who are governed. The ruling minority is never able to grasp the problems and aspirations of the majority. This in effect is a negation of Democracy (Deccan Education Society, 1960). In this context, it is also revealing to study Macaulay's notes on education. Macaulay wrote in 1835 that : 'We must at present do our best to form a class who may be interpreters between us and the millions we govern, a class of persons Indian in blood and colour, but English in taste, in opinions, in morals and in intellect'. Thus, it is clear that even those that introduced the teaching through English knew that such persons will have only English tastes and will not associate themselves with the general public. That this is true even today has been observed by well meaning foreigners like Epstein (1973). She observes "University Graduates from Wangala (a village in Karnataka) are unlikely to exert much influence over village affairs... the graduates will sever their ties with the village completely and becoming contemptuous of village ways of life ...".

The non-availability of words and books are not a bar to a change in the medium, as it is obvious that only when there is a necessity will the books appear (Damodaran, 1974). Any drawback at the moment need not mean that there exists a permanent disqualification (Grant, 1971). In this context a review of the growth of English is worth undertaking. The following are extracts taken from a book on A Social History of Education in England by John Lawson and Harold Silver:

- (i) French was the vernacular used in the school room until the second half of the Fourteenth century, when English outgrew the prejudice against it.
- (ii) French and English were being increasingly used in the later Fourteenth century for official as well as for commercial and private transactions (as opposed to Latin).
- (iii) Among the more prosperous trading class, literacy in English became common place in the Fifteenth century. The London Brewer's Co. resolved in 1422 to keep their records in English instead of Latin or French.
- (iv) More drastic were the changes made between 1549 and 1553 under Edward VI. The book of common prayer in English supplanted the old Latin service books.
- (v) During this period, (1530 to 1640) the vocational purpose of the grammar school changed. With the triumph of vernacular, Latin lost its professional utility (save to a diminishing extent for lawyers and physicians) and it became mainly an accomplishment for scholars and cultivated gentlemen.
- (vi) The commission (Taunton commission, 1864) considered that English language and literature could be an elevating part of education but realised the difficulty in finding teachers able to teach it in such a manner.

These passages clearly demonstrate that a language which was considered not suitable for use to express scientific thoughts about three hundred years ago, is now ruling supreme in the whole world in communicating the latest developments in Science and Technology.

As a further example, the case of Germany in the eighteenth century can be quoted. At the courts French was the language of prestige : German that of every day communication. Fredrick the Great of Prussia considered German a language fit for peasants. He often wrote French (Lehmann, 1962).

Consider also the fact that many regional languages, as for example Tamil, are rich and have vast diction. Tamil dictionaries have been written from time immemorial. The Tamil Lexicon published 35 years ago contains about 120,000 words (Sundara Shanmugam, 1971). It is also pointed out by scholars like Jaya Kothai Pillai (1972), literary in ancient Tamil Nadu must have been very high.

The choice

The discussion in the previous two sections clearly indicate that Scientific and Technological knowledge can be imparted through the regional languages. The opposite views are either of some foreigners who are not interested in the welfare of this country or of those in this country with vested interests and who wish at all cost to prevent the spread of education among all sections of the

society. Therefore, it is obvious that the present state must be changed and the mother tongue can and must be made the medium of instruction at all levels.

3. DESIRABLE STEPS IN THE INTRODUCTION OF INSTRUCTION THROUGH THE MOTHER TONGUE

The desirable steps for introduction of instruction through the regional language at all levels of Technical Education may be grouped under the following heads:

- (i) Development of a Scientific Terminology and Literature in the regional language (Technical aspects).
- (ii) Implementation aspects.
- (iii) Psychological aspects.

Out of these, the first two items have been very widely discussed in the past in several books and in several seminars conducted for the purpose, such as the seminars at the College of Engineering Guindy, P.S.G College, Coimbatore and Indian Institute of Science, Bangalore. But not much thought has been bestowed on the last item.

4. DEVELOPMENT OF SCIENTIFIC TERMINOLOGY AND LITERATURE

Development of Scientific Terminology

It is obvious that when new terms are coined, they shall generally conform to the grammatical rules of the language and shall not deviate substantially from the conventions. The new work can be coined by the following methods:

- (i) The relevant foreign words can be modified to suit the conventions of the borrowing language and absorbed.
- (ii) Translate the words retaining substantially the meaning of the word in the original language
- (iii) Extend or slightly alter the meaning of an archaic word to suit the present necessity.

A search of literature indicates that all the statements made by several writers fall under these three classifications (Agasthalingam and Shanmugam, 1973; Indian Institute of Science, 1972; Ganesan, 1972; Muthu Pillai, 1973; Ganapathi Pillai, 1973; Abbas Mantri, 1973 (a) and (b); Meenakshisundaram, 1965; Catford, 1965).

While undertaking large scale writing of technical books, it is also necessary to do the following (Kulandaiswamy, 1973) :

- (i) Standardise the procedure for the formation of new words.
- (ii) Coin root words which can be modified to form verb and other forms.

- (iii) Coin certain affixes and prefixes which can be added or appended easily to the root words to form new words.

Development of Scientific Literature

Books can be classified as follows (Thoklapiar) :

- (i) Original contributions.
- (ii) Explanatory texts, concise versions and translations of the originals.

As, in the present context, most of the contributions are translations or involve substantial translation effort, it is to be pointed out that while translating, the conventions and linguistic style of the borrowing language must be satisfied (Catford, 1965).

5. IMPLEMENTATION ASPECTS

The following are the necessary aspects of implementation :

- (i) Use of the regional language for official purposes.
- (ii) Facilities for study in the regional language with preference in Public Service to those studying in the regional language.
- (iii) Publication of scientific books in the regional language.
- (iv) Publication of relevant technical journals in the regional language by the Government departments.
- (v) Including the regional language as an official language at technical conferences and seminars.

As the effects of these aspects are obvious, they are not discussed further here.

6. PSYCHOLOGICAL ASPECTS

An ordinary man does not know what he wants (Thomas Harris, 1967 ; Manickavasagar). Some persons with vested interests are out to confuse him. This naturally leads to a situation, when the public are not aware and do not realise what is good for them. In a democracy, it is necessary for the Government to convince the people even in implementing a good measure and prepare them to accept the same. Therefore, the Government may have to set up a special machinery to popularise the introduction of the regional language as the medium of instructions

7. CONCLUDING REMARKS

The necessity and desirability of introducing the native language as the medium of instruction at all levels in the Technical Institutions have been stressed. The technical aspects, the physical implementation

and the psychological preparation of the public to accept the change are all brought out.

For the technical teachers, this change in the medium of instruction will involve extra effort. But a similar difficulty was experienced in changing over from FPS to CGS units. The teachers realising the advantages of the CGS unit system, put up with the difficulties of the change over. Similarly, they should now realise the immense benefits to the younger generation in the change over in the medium of instruction and willingly co-operate in this effort.

The educated few of this country must realise that in a democratic welfare state, every citizen has a right to seek higher education. For achieving a fast growth of the nation, all have to have an access to scientific and technical knowledge. This is possible, only if technical knowledge is available in the native language. The intelligentsia should come forward to state this without fear or favour and consider it as their duty to enrich the native language by writing and publishing scientific books in their mother tongue, thereby putting their knowledge they have gained through foreign languages to the benefit of the society in which they are a part and parcel. Let the day when every citizen in this country has access to the scientific and technical knowledge of the world through his mother tongue arrive early and the teachers and educated elites contribute their best in bringing this dream come true.

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to provide facilities of higher education to one and all. Due to paucity of funds even the existing institutions are not adequately equipped.

There is a growing decline in the number of competent, dedicated and efficient teachers. Hence it would be advantageous to have an Open University which provides part-time education.

There was no need to have palatial buildings for an Open University. The teaching methods of this University naturally differed from those of other Universities. The students are taught through correspondence, contact classes and broadcast on radio and television. Specially written course materials are sent to students by post. They contain study notes and assignments. After completion, the students return them to their tutors for marking and grading.

Britain's Open University located in the new town of Milton Keynes in Buckinghamshire is very famous. Established in 1971, this University has been successfully conducting even science courses. It is considered the second largest in Britain after London University with an enrolment of 30,000 students. The University awarded its first degrees in January 1973 to 867 students. It has faculties of Arts, Educational Studies, Mathematics, Social Sciences, Science and Technology. There is also an institute of educational technology. Each faculty has a full-time Dean and Director of Studies and the staff in May 1973 included 28 Professors, 47 Readers and senior lecturers, 129 Lecturers and 95 staff tutors. 200 outside contributors also assisted the University in the production of material. Three special categories of students namely overseas service personnel, the disabled and prisoners get preference in admission. The degrees awarded by this University were in no way inferior in standard and could compare well to degrees awarded by other universities.

In America, a similar venture was launched in 1958-59 in which lectures on Physics course were transmitted over the national T.V. throughout the country. Seven Noble Laureates besides many distinguished scientists gave lectures in this course and thousands of students had the opportunity of viewing and listening to them. This was a unique experiment in which a large number of students irrespective of their economic and social conditions could get the benefit of learning through the lectures of renowned men and women.

The proposed Open University at the National level might conduct the courses mainly through radio (about 70 per cent), 20 per cent through correspondence and 10 per cent through contact classes as T.V. facilities are not available at all places. Education under the Open University system would not be more expensive. ▼

The Open University

(Contd. from page 3)

gement, and ensuring on the other, the personal fulfilment and happiness of individual citizens in a democratic society—these are the burden in varying measure of most, if not all, recent major educational reports—Crowther, Robbins, Newsom, Daintain, Swann, and of various manpower reports.

Mr. V. Ramachandran, Director of Higher Education, Andhra Pradesh, in his recent broadcast said that in the new system of education the students need not attend classes regularly but can learn at their homes through television broadcasting and radio broadcasting. For a developing country like India this system was very necessary. Those working in offices and factories could learn in their leisure hours. The Open University provides opportunities for higher education to all those who for various reasons could not achieve their aim of getting a degree. Besides providing fresh and renewed opportunities for such students, the establishment of an Open University would also promote standards in Universities. In an over populated country like ours with limited resources we have not been able

VOCATIONALIZATION IN AGRICULTURE

Dr. C. Prasad

The Agricultural education at lower levels is very crucial— it being the foundation for the higher education in agriculture. Somehow, this aspect was neglected in the past. It is a happy augury that a realization has come to this effect and agricultural education is getting priority in the World of Education. This point was highlighted by the Central Advisory Board of Education (1974) when it recommended to organise vocational courses in agriculture and allied fields on a larger scale specially in the rural areas. Even in the urban areas some of the selected courses in agriculture can be offered for the benefits of the students like courses in nursery management, gardening, poultry-farming, dairy, food and nutrition.

The work-experience in agriculture in high schools and vocational courses at +2 level is the responsibility of Ministries of Education at the state and central levels. But in view of rapid scientific developments in agriculture it is very essential that a proper functional linkage be developed and maintained between the Ministry of Education and the I.C.A.R. at the centre and Ministry of Education and Agricultural Universities/Institutes at the state levels.

In the past different patterns of educational systems such as 11+2+3, 10+1+1+3, 11+4 etc. have been followed in agricultural institutions. It is heartening that a uniform pattern of education : 10+2+3 is being recommended for the country as a whole. In fact, for the professional courses such as Agriculture, Animal and Veterinary Sciences, Agricultural Engineering etc., this pattern should be 10+2+4 or 10+2+5, as the case may be. The analysis of educational systems in vogue in various agricultural institutions will support this contention on the basis of the differential requirements and demands of different allied professions. Already some of the agricultural universities are following this pattern.

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The new system provides for two streams after high school education—academic and vocational with the provision for interchangeability from one stream to another by offering some elective courses. In other words, the academic stream will provide the opportunity to go up on the academic ladder, whereas vocational courses, by and large, will be terminal in character. It is a question to be deliberated upon as to whether or not a student with vocational education at +2 level can aspire for degree programmes. This question, in fact has come up recently in Karnataka State where +2 level successful students have been wanting to take admission in the agricultural degree programmes. While one approach could be that students with brilliant performance at +2 level may be given such opportunities, the other view could be to provide for higher certificates/diplomas. This may be a better proposition in view of the fact that vocationalization in agriculture or for that matter in any other discipline should be provided for even at higher levels like the degree programmes. This will have an advantage of having two streams of trained personnel, both equally important but differing basically in the content of their training. The successful students in vocational agriculture with higher certificates and diplomas should be considered at par with the degree holders at that particular levels and they must enjoy similar privileges in terms of pay scale and status. The basic distinction would be that academically trained people could find a preference over the vocationally trained people in academic fields, whereas the latter should find preference over the former in the development fields like Development Departments, Extension Work Agro-Industries, Banks and the like.

At the instance of the Ministry of Education and Social Welfare an ad hoc committee has been appointed by the ICAR for providing guidance and necessary assistance in developing and organising vocational courses in agriculture and allied fields. The committee has identified 32 vocational areas in agriculture which would be important and useful for varied interest groups like : Crop Production ; Plant Production ; Weed Control ; Farm Machinery, Tractor Operation and Maintenance, Seed Production Technology ; Post-Harvest Technology ; Sericulture ; Bee-keeping ; Soil and Water Conservation ; Agricultural Extension ; Vegetable Production ; Fruits Production ; Fruits and Vegetable Preservation ; Gardening and Nursery Management ; Horticultural Extension ; Dairy Farming ; Milk and Milk Products ; Livestock Health ; Poultry Farming ; Sheep and Goat Production ; Pig Husbandry ; Fish Seed Production ; Fish Culture ; Animal Husbandry and Dairy Extension ; Tailoring ; Food and Nutrition ; Bakery and Flour Confectionary, Catering ; Home Management ; Child Development & Care and Home Science Extension.

The committee is working out course content in these areas for the guidance of the organisers and

teachers in vocational agriculture. Such exercises are also being made by various institutions and committees in the States and for them it would be very essential to develop syllabi keeping in view the nature of 'Education' and 'Training'. As a matter of fact, they should be in the ratio of 25: 75 respectively in order to make it a skill and practical oriented. The courses should be designed following the modular concept in smaller units of certain credits (2,3 etc.) and should be offered under the Internal Assessment System. The latter system is in vogue in agricultural universities since 1958 and their experiences can be taken advantage of in organising vocational courses in agriculture at +2 level and above as also in other disciplines.

It would be equally important to pay attention to the appropriate balance among the areas of studies like languages, social studies and humanities, basic sciences and vocational courses. Keeping the nature and requirements of agricultural courses, the ad hoc committee has recommended the following proportion of time to be devoted at the +2 level training :

Languages	:	10%
Social Studies & Humanities	:	10%
Basic Sciences	:	30%
Vocational Courses	:	50%

It has further been recommended to have 200 working days per year having 6 hours of work per day. Theoretical and practical training programmes of these courses should be organised on 25 & 75% basis respectively.

Indeed, the time has come, in view of work-experience in agriculture in schools + vocational courses at + 2 level being so stressed, that we have to think for developing the Centre/Institution for vocational education in each State. This Institution should cater to the needs of training the teachers concerned with work-experience in agriculture in schools ; +2 level students in vocational agriculture ; and higher certificates and diploma courses for vocationally trained and desirous students. It will be an ideal situation to develop a commercially viable agricultural farm, a poultry farm, a workshop, a piggery farm, fishery farm as per needs of the area in the vocational institution so that the training is by 'learning to do' by doing. This is the need of the time and the authorities concerned both in education and agriculture must pay attention for developing such an Institution.

Institutions and courses alone may not deliver the goods. The most vital element in this teaching and learning process is the teacher. It would be very difficult to find teachers in large numbers who have the aptitudes, knowledge and skill to teach vocational courses as per the present concepts and design. A purposeful Teacher's Training Programme, therefore, will have to be evolved for such teachers. Training of such teachers will basically differ from the existing teachers training in education (BEd &

MEd etc), in that it will be more technologically-oriented rather than oriented towards teaching methods and processes.

Preparation of suitable literature/textbooks plus practical manuals for vocational courses have to be developed. It will be essential to study the existing vocational courses in agriculture being offered by different institutions and to collect their literature and text-materials. They may be screened and further improved.

In order to reduce the initial investments in developing teaching materials and facilities, it has been suggested to relate the vocational teaching programmes with the on-going developmental activities. For example the farms of the progressive farmers, thenational demonstrations, operational research projects, agro-industries, state farms etc. can provide a very rich experience to the students if the teaching programmes are integrated with the external environment and facilities.



MADURAI UNIVERSITY

NOTIFICATION

The Madurai University provides instructions by Correspondence for the Pre-University Course, B.A., B.Com. (Tamil and English medium) degree courses and also for such post-graduate courses as M.A. (Tamil, English and History), M. Com., and B.G.L. (English Medium). These courses are open to students from all over India.

Details and particulars regarding the above can be had from the Director, Institute of Correspondence Course and Continuing Education, Madurai University, Palkalainagar, Madurai-625021 on request with a self-addressed and stamped (25 paise) envelope. The envelope should be of 22cm x 12cm. in size.

DIRECTOR

Madurai University
Palkalainagar.

Institute of Correspondence
Course and Continuing Education

CONVOCACTIONS

Role of Universities in National Development

The first convocation of the University of Jammu was held this year. Dr. Karan Singh, Union Minister for Health and Family Planning was the chief guest. Dr. Singh exhorted the students to involve themselves in the four-fold process of preparation and development. The first and in a way the most fundamental is the physical development. The second requirement is the development of intellectual capabilities. He wanted the students to increase capacity for creative adaptation of new knowledge to the changing requirements of the society. The habit of working as a disciplined team was equally important. He emphasised upon them the need for the spiritual growth, the development of those deeper values which in the ultimate analysis make the human race unique.

India of today, he said, is an India of multiple, unfinished revolutions. Political freedom, which some considered to be the end of all activities, is really only

the beginning. The political freedom involves not only rights but also duties. Similarly, in the field of economic development though tremendous progress has been made but vast number of people suffer from disease, ignorance and are extremely poor. The process of economic growth have therefore to be speeded up. Today just as irresponsible social behaviour is no longer acceptable in the society, irresponsible reproductive behaviour will also be not acceptable to the society. The transformation of society, he said, is not possible merely by legislative rules. There is something in which our intellectuals and students have of to be fully involved. The country needs a cultural revolution. Our attitude to public property has to change and the casual attitude towards work also requires a change. We still have the unfinished political revolution, the economic revolution, the social revolution and the cultural revolution. There is no scope in this country for defeatism or

despair. Unless we have an intellectual community which is deeply and emotionally committed to the development of the nation, we will not be able to succeed in our tremendous experiments of building the new India.

Dr. Singh said that he regarded university as a crucible for intellectual growth and development of the community. Every university in this country should develop two or three special interests. The first is the employment orientation. The second is involvement in community development. Similarly every university should specialise in the history of the region, in the geology of the region, in the languages and arts and other developments of the region so that while subscribing to basic national ideals and the universal ideals of enlightenment and education they are also able to make a specific contribution in the areas in which they are located. He said that the Jammu University should play a central role in the re-development and re-discovery of the great cultural, historical and artistic heritage that exists in this region. ■

Dr. S.N. Sen, Vice-Chancellor University of Calcutta, delivered the convocation of Gauhati University this year. He said that the country has progressed economically, politically and socially after the independence. An infrastructure for agricultural and industrial development has been created. Significant advances in agricultural activities have taken place in a number of regions leading to a 'green revolution'.

The university system, which is much criticised, is still the best equipped system to handle the needs of the country. The quality of teaching has gone up and Indian students can face all sorts of challenges and are in no way inferior to the students of other universities of the world. There has been a marked improvement

in the programme of quality of teaching.

The deficiencies of the present university are however many and a good deal of dissatisfaction is due to the system of large public examinations conducted by our universities. The syllabi and the courses of study have remained at various places too theoretical and unrealistic. These have been primarily due to fact that the universities during this decade had to cope with the very large demands for higher education which began after independence. Explosion in the number of students has consequently given rise

Growth of University System since Independence

to many problems such as the hasty establishment of sub-standard institutions and extremely unsatisfactory teachers-students ratio in many such institutions. Due to variety of reasons there has been a significant fall in the number of teachers with the right motivation leading to dull and uninspired teaching and lack of contact between the teachers and students. The unwillingness to bring about suitable changes in the syllabi is also to a large extent the effect of such a lack of good teachers.

These deficiencies are of course serious. But the redeeming feature is that attempts are being

made under the auspices of the U.G.C. and by many universities themselves, to remove many of these defects, such as the reform of the system of large public examinations, modernisation of syllabi, etc. The most significant measure has been the upgrading of the salary scales for university and college teachers which, we all

hope, would attract the best students of universities with the right motivation to teachers. There are thus many welcome signs of attempts at reform—doing away with the evils of rapid expansion and neglect of long years. With such self-assessments the university system is bound to assume its upward march and

will be poised for a real breakthrough.

Dr. Sen also referred to the evils of indiscipline and corruption which have eaten into the vitals of the society. He pleaded with the young graduates to cure these ailments of the society.

Changes proposed in Medical Education

The Deans and Principals of medical colleges met recently in New Delhi to consider the recommendations of the group on medical education and support manpower. A series of changes in the medical educational process and its institutional framework have been suggested. The various changes proposed are :

The medical colleges and associated teaching hospitals should extend their service activities to the rural community by establishing functional linkages with the regional, district tehsil and taluka level hospitals, primary health centres, municipal and corporation health services and other public health services in their area or neighbourhood in the form of a viable and economic referral services complex.

Each medical college should act as a leading body for coordinating the service programme of the referral services complex to develop an integrated and comprehensive programme for health services to the community.

The services to be rendered to the community by this coordinated health services complex would have due emphasis on preventive, promotive and rehabilitative aspects and would fully integrate the important national programmes for control of communicable diseases nutrition, maternity, child health and family planning.

The training programmes for undergraduate medical education should be cast within this integra-

ted and comprehensive health service complex. In developing these training and service programmes for community health needs, the medical colleges should try to involve competent and interested general practitioners in private practice in collaboration with the Indian Medical Association. In order to achieve this objective the faculty members, clinical and non-clinical, and students should be deployed, at the regional, district and other peripheral institutions including the PHCs and their sub-centres to secure their participation in the development of each of these institutions for integrated and comprehensive health care delivery and in undergraduate medical education.

To begin with, the medical colleges should accept total responsibility for promotive, preventive and curative health care of three community development blocks in a district and supervise the functioning of all services.

In order that the involvement of medical colleges in the regional, district, tehsil and rural health services programme is effective and fruitful, it is essential to associate doctors working in these organisations in the training programmes of undergraduate medical students.

The resources of the medical colleges, district and sub-divisional level hospitals and PHCs in the referral services complex should be pooled with required augmentation in respect of transportation, equipment, drugs, etc. and for providing residential accommodation at district, sub-divisional hospitals and PHCs.

An appropriate balance should be struck in the training of the

undergraduate medical students between the teaching hospitals and the referral system complex to achieve community orientation amongst the future doctors.

The internship programmes must be strengthened by getting the interns to spend the internship period fully in the district, sub-divisional, taluka hospitals and among the community through the PHCs. In this programme, general practitioners of good standing and experience should also be associated.

The teaching of community medicine must be strengthened by making it a joint responsibility of the faculty of medical colleges and to this end a commission must be set up in each college for laying down the policies and processes of undergraduate medical education. The education and training programmes of the department of social and community medicine should be coordinated with the clinical and para-clinical departments both in the hospitals and the field.

District-level public health administrators having experience of public health and control of communicable diseases and other national programmes should be associated with education and training activities of medical colleges.

Programmes of continuing education for physicians should be promoted by organising refresher courses and by other means to update their knowledge and skills.

Assisting the monitoring and evaluation of the work of community health services by the district, tehsil and block level health services and thus influencing the training programmes of various categories of para-professional and para-medical workers.

ROUND UP

Revised re-employment rules

The Delhi University has revised the criteria for the re-employment of teachers. This would ensure that only the distinguished teachers get re-employment. The Executive Council at its last meeting decided that teachers who had attained the age of superannuation, a system of self-assessment by the teachers themselves once every alternate year should be introduced. Such an assessment would be reviewed by the Head of the Department or the Principal of the college and in the case of Principal by the Chairman of the Governing Body. The record of the teacher containing the complete bio-data, his teaching experience, self-assessment details, fields of distinction, involvement in extra-curricular activities and physical fitness certificate would be forwarded to the Vice-Chancellor. If he desires the case may be referred to an advisory committee consisting of the Pro-Vice-Chancellor, the Director of South Campus and the Dean of Colleges and any other expert who may be appointed for this purpose.

A distinguished teacher or a Principal may be re-employed at any time after retirement subject to the overall limit that no one will continue to be re-employable after the age of 65 years. The re-employment in the first instance would not be for more than three years and would be treated as a fresh employment which could be terminated at a three-months notice.

Allocations for Science and Technology

The Department of Science and Technology has requested various Ministries in the Government of India to create a separate 'Science and Technology' head in their budgets. Instead of trying

to centralise all science and technology funding, the department's prime role is to spread 'science and technology culture' in the various departments and ministries so that they could plan for their research and development needs.

Dr. A. Ramachandran, Secretary of the Department, said that while pursuing this policy, efforts are being made to establish closer links with individual ministries and scientific agencies with a view to working out the details of the priority projects in the important sectors for suitably increasing the science and technology plan allocations. A sum of Rs. 120 crores was allotted to the department in 1975-76 against of Rs 75 crores spent in 1974-75.

The department is also funding research pertaining to inland water transport. A survey has been recently conducted on the assessment of traffic in river Ganga from Allahabad to Calcutta with a view to making a comparative study of cost benefit of inland water transport with other modes of transport. The department proposes to set up a Ocean Science and Technology Agency. A note has been prepared for the consideration of higher authorities.

Farm scientists to visit neglected areas

The significant feature of the Agricultural Research Service, constituted in October 1975 by the Indian Council of Agricultural Research, will be the system of career advancement, irrespective of vacancies on the basis of five-yearly assessment. Every agricultural scientist in the service may have to work for some time in neglected and tribal areas.

The ICAR would soon start two krishi vigyan kendras for the benefit of farmers, farming women

and agricultural labourers. The basic task of the kendras will be 'to impart learning through work experience' and to train extension workers, farmers and fishermen. The ICAR would also develop a mechanism for evaluation on the progress of the agricultural universities which had been in existence for over five years. Their programmes would be reviewed and future planning would be decided on the basis of their experiences. This would help the agricultural universities to keep their programmes according to the needs of the country. Twentyone agricultural universities of the country are promoting the development of higher education in agriculture.

Science courses for common man

Saurashtra University has planned Science courses for the layman. The villagers would be imparted knowledge of basic principles of science and its effect on day-to-day life. During the year exhibitions demonstrating the contributions of science to the common man's life would be organised and would be taken from one village to another within the jurisdiction of the university.

Mr. H. S. Sanghvi, Vice-Chancellor of the university, is keen that fruits of science should reach the villagers. For this purpose extension lectures would be arranged from eminent persons and an endeavour would be made to reach the rural community by organising lectures on agriculture science, every day physics, chemistry and botany. The villagers in Saurashtra are faced with many problems like shortage of drinking water, irregular monsoon and crop failure. The scientists will have to face the challenge and the university would be alive in bringing relief to them by devising different methods of assistance. This assurance was given by the Vice-Chancellor while inaugurating the 45th session of National Academy of Sciences held at Rajkot this year.

Health Science courses

The Osmania University has decided to introduce postgraduate courses at the district centres at Kothagudem, Ramgundam and Nizamabad from 1976-77. These courses would be application oriented and relevant to the need of the people of the area. There would be courses in agro-industries, geology, mineralogy and mining engineering, physics, limnology and fisheries, commerce and management and rural studies. The State Government has agreed to provide Rs. 5 lakhs for each of these centres.

Shri P. Jaganmohan Reddy, the Vice-Chancellor, also announced recently that the university would introduce B.Sc. (Health Science) course for girls. The idea to start this course came from Dr. Jacob Chandy, the famous neuro-surgeon and the former Principal of the Christian Medical College, Vellore, who has given his services to the cause of public health in rural areas.

The syllabus for the course has been finalised by the Standing Committee of the Academic Council and the medical colleges would run the course on a state-wide basis. One candidate from each of the districts and two from city of Hyderabad would be chosen on the basis of an entrance examination. Special emphasis would be laid on anatomy, obstetrics & gynaecology, physiology, microbiology, sex education apart from the course in general education. The intake for this course would be increased subsequently.

Universities plan Himalayan ecological regeneration

A programme of action has been worked out for the ecological regeneration of the Himalayan area by the representatives of the universities of Kashmir, Garhwal Kumaon, Himachal Pradesh, G.B. Pant, Bidhan Chandra Krishi & Assam Agricultural and North-Eastern Hill University at their meeting held in Shillong. It was decided to set up Inter-disciplinary

groups to implement the integrated rural development programme.

These groups will comprise geographer, economist, botanist, zoologist, engineer, sociologist, public health and medical scientists, home scientists and agricultural scientists. Each university will select a district for its work in consultation with the state authorities. It will fully participate in the scientific planning, training and monitoring programmes. As part of this activity, the university will also compile an integrated resource inventory of the district. The Indian Council of Agricultural Research, the Council of Scientific and Industrial Research and the Department of Science and Technology would arrange for workshops for the training of the inter-disciplinary groups of the universities for undertaking an operational resource inventory survey including the techniques to be followed. Based on the resource inventory survey, the university would finalise the blueprint for action in collaboration with the local agencies and the State authorities. In this work the

senior students of the university would also be involved. It is expected that about 75,000 students will form the major group for the implementation of these programmes.

For ecological regeneration and agricultural research in the region, it was suggested that a campaign by students and faculty be launched. These measures would include planting of trees suitable to the particular hill areas with proper scientific management in consultation with the personnel of the forest department. The grasslands and young plantation are proposed to be protected by fencing with locally available material. Student task forces would be organised to help in local agri-horticultural operations like harvesting in orchards. Students would be trained in induced breeding techniques of silver and grass carps in consultation with the composite fish culture centres located in Gauhati, Jaunpur and Karnal. Control of noxious weeds, rodent control operations and organisation of water resources and supply system



"The best way of ensuring that your thesis is approved is to make it as long as you can because no one has time to go through it....."

in a manageable area are also envisaged. The technical guidance of the ICAR would be available to the universities in taking up specific programmes.

Himalayan Studies Centre

The Garhwal University has plans for setting up an Institute of Himalayan Studies and Regional Development. The scheme has been approved by the State Government. To begin with core staff would be provided and the work in close collaboration with the existing teaching staff would be undertaken. The problems of this region like hydrology, meteorology, soil erosion, irrigation, pisciculture, horticulture, conservation of flora and fauna and the tourist development would be taken up. A diploma course in regional development and ecology would be added subsequently.

Diploma in Sports Medicine

A new diploma course in Sports Science Medicine would be instituted by the University of Calcutta from the next academic session. The State Government is also considering the proposal for the sanction of necessary funds. The entrance qualification for this course would be the M.B.B.S. degree and B.D.S. and proficiency in Sports. The course will be of one year's duration and will be the first of its kind in any Indian University.

New schedule of donations

A new schedule in respect of donations and endowment has been worked out by Madras University. The minimum amount for instituting medals and prizes has been raised to Rs. 10,000 and for instituting undergraduate scholarship to Rs. 25,000 for post-graduate scholarship Rs. 50,000 and for instituting a Chair in the university Rs. 5.5 lakhs. The Vice-Chancellor of Madras University, Dr. Malcolm S. Adiseshiah, said that these regulations had to be introduced to overcome difficulties experienced by the university in

receiving and administering small donations.

Correspondence Courses at Kurukshetra

The B.N. Chakravarty University has decided to introduce correspondence courses from the forthcoming academic session. The University has already approached the University Grants Commission for the sanction of suitable grant for constructing a new building for the Directorate of Correspondence Courses. It is estimated that initially the correspondence course would entail an expenditure of Rs. 4 lakhs.

Dr. S. K. Dutta, Vice-Chancellor of the University, said that the institution of the correspondence courses would meet the urgent requirements of the State.

The Samsad also decided to bifurcate the departments of Commerce and Management. The University Grants Commission has provided assistance for the Master of Business Administration Course. Diploma course in Office Management and Secretariat training would also be instituted from the coming session at the University.

Centre for Development Study

The Magadh University will soon have a Centre for development study under the inter-disciplinary programme. According to Dr. P. Dayal, the Vice-Chancellor, the UGC has sanctioned a sum of Rs. 25,000 as seed money for the proposed Rs. 8 lakhs projects. The centre would look after the various developmental schemes of the university.

The university has also decided to introduce grading system in its examinations. A meeting of the Principals of all colleges has been called to discuss ways and means for the early implementation of the new scheme. A workshop on grading system would also be organised early in July. The university will soon bring out a handbook giving

necessary details about the colleges affiliated to the university.

T. Nadu new admission procedures

New rules regulating the admission of students to the various professional and non-professional colleges in Tamil Nadu are being worked out by the State Government. The Governor, Shri K. K. Shah, said that the interests of students belonging to the scheduled castes and scheduled tribes would be fully safeguarded and the reserved 40% seats would be made available to them. In addition they would also be allowed to compete with other communities for the seats in the general pool. The interview system to assess the personality and the suitability of the candidates for the professional colleges would be dispensed with from this year. Merit would be the sole criterion for admission both to professional and non-professional colleges. The marks secured by the selected candidates would be displayed for the information of all the applicants.

Second Farm University

Karnataka is soon going to have the second farm university. The Government has set up a Working Group-cum-advisory Committee to study the proposal to establish a second agricultural university in the State. This committee will also prepare a case for the University Grants Commission and the Indian Council of Agricultural Research. There will be ten members with the Development Commissioner and Special Secretary to the Government as its Chairman. The other members are : The Commissioner and

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Secretary to Government, Agriculture and Animal Husbandry Department ; the Vice-Chancellor, University of Agricultural Sciences ; Director of Research, University of Agricultural Sciences ; the Directors of Agriculture, Horticulture, Animal Husbandry and Veterinary Services and Fisheries and the Chief Conservator of Forests (General), Bangalore. The Deputy Secretary, Agriculture and Animal Husbandry Department (Agriculture) will be its Member-Secretary.

Science Museums

The Ministry of Education is considering a proposal to set up science museums, one at the national level and at least six at district levels. The idea is to create a consciousness amongst the citizens about the national development in the areas of science and technology through the display of materials. The museums would also undertake rural extension activities for popularising science and scientific way of thinking. The location of the six district museums is yet to be decided.

Visiting Fellowships

The University Grants Commission has decided in principle to institute visiting fellowships and professorships at some universities where creative artists and writers will be invited to deliver lectures. Under this scheme artists and writers accepting the offer would pursue advanced study in the field of their expertise apart from participating in the departmental activities. The UGC has also decided to institute 50 scholarships for LL.M. students at selected universities in view of the fact that the Master's degree has been made the minimum qualification for a lecturer in Law college.

Indo-US panel discussions

The Indo-American Sub-Commission on Education and Culture held its meeting in New York in the last month. The keynote of the Sub-Commission session was a mutual desire to promote

the concrete results. It was proposed to hold two seminars during 1976-77 on linkages of agriculture and education and education and educational technology. Views on the institution of Indo-US fellowships and visitorships were also exchanged and the progress report of the Museums Committee was also reviewed. The Museums Committee in its meeting held in New Delhi last year had made proposals for a programme of cooperation between departments dealing with museums on methods in History. Two seminars were organised on 'Methods of History' and 'Museum as educational resource'. The Joint Commission discussed further measures to institutionalise the cooperation between the two countries in education, culture, trade, agriculture, commerce and scientific development.

GAU establishes new departments and faculties

The Gujarat Agricultural University has decided to establish the faculties of agricultural engineering and technology and basic science and humanities from the coming session. It will start new departments of biochemistry, nematology, cytogenetics and horticulture. A centre for research in arid and semi-arid zonal problems, centre for agricultural education and research, krishi vigyan kendra and livestock research station would be taken up as and when funds are made available in the five-year development programme of the university.

The university has introduced semester system in all its faculties. With a view to orient the teachers to new methods of teaching and evaluation, seminars on teaching

methods and evaluation were held at Junagadh, Anand and Navsari campuses. The seminars were followed by teachers workshops. These workshops enabled the teachers to develop new techniques of teaching.

ONGC collaboration with ISM

The Oil and Natural Gas Commission has agreed to give an annual grant-in-aid of Rs. three lakhs to the Indian School of Mines for carrying out collaborative research with the Institute of Petroleum Exploration. The problems selected for collaboration include Petrophysical studies of Reservoir Rocks, Study of Rheology of waxy and highly viscous crude oils, De-emulsification studies of crude oils (in first stage) and Geo-Chemical prospecting of oil in Sedimentary Basins, Indigenous additives for oil field drilling fluids, and PVT study of oil and gas samples. The Department of Petroleum and Technology of the Indian School of Mines has already done some commendable work in Viscosity Studies of Reservoir fluids in collaboration with Oil India Limited. It has tested and evaluated the rheological properties of Indian bentonite samples. Work is in progress on permeability studies in gravel packing and a preliminary examination on the feasibility of mining for oil.

WHO Award

Prof. V. Ramalingaswamy, Director of the All-India Institute of Medical Sciences, New Delhi has been nominated for the Leon Bernard Foundation Award—established in memory of a founder of the League of Nations health

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organisations—for outstanding achievements in social medicine. He has devoted nearly 20 years in the development and application of health technology particularly suited to the social and economic conditions of poor communities in India. His work on endemic goitre has paved the way for effective control of this world-wide disease. During the famine in Bihar in 1966 he developed treatment based on locally available foods so that expensive vitamins and processed foods were not needed. His study on nutritional anaemia in pregnant women carried out with the WHO support has led to the identification of the factors responsible for this condition. As a result of Prof. Ramalingaswami's work, all expectant mothers in India received a supplement of iron and folic acid.

Prof. Hasan visits CIEFL Centre at Shillong

Prof. Nurul Hasan, Union Education Minister and Prof. Satish Chandra, Chairman, University Grants Commission, visited the regional centre of the Central Institute of English and Foreign Languages, Shillong. Dr. Ramesh Mohan, Director of the Institute, welcomed the visitors and acquainted them with the activities. The need based courses organised by the centre for the people of this region and the methods for teaching English at different levels of education in this region were appreciated.

Dr. K. Subrahmanian, Officer-in-Charge of the centre in his report said that refresher courses for college and school teachers in West Bengal, Assam, Arunachal Pradesh, Meghalaya, Manipur, Nagaland, Mizoram and Tripura were conducted from time to time. More than 500 teachers have been trained during the last two years. The centre also organised courses for postal inspectors in public relations and spoken English and in case writing for police officials of Meghalaya. An intensive three-month course in French has also been organised recently. A news bulletin containing articles of interest to

English teachers is regularly brought out.

Prof. Hasan in his address said that in the present day context English was very important as it served as a link language for many sections of the Indian people. It was the main source of higher learning for the country and for enabling them to remain in touch with the explosion of knowledge. The centre had a special responsibility in suggesting techniques of teaching English effectively to the student community. Prof. Satish Chandra said that the centre had to play an important role in developing techniques of teaching English as a second language. He hoped that there would be many more regional centres like the one in Shillong and these centres would inter-act with various universities and institutions of higher learning in the country. He felt that the State English institutes should be within the framework of the universities so that they could function academically instead of functioning bureaucratically.

Workshops for Grading System

In implementation of the recommendations and decisions of the Workshop on Grading System organised by the University of Jabalpur recently the university has decided to have a number of workshops for training teachers, students and administrative staff members. A series of workshops in colleges and study centres would also be organised. The first workshop would be for the personnel of university examination branch and selected representatives of the different faculties. There would however be separate workshops both at the university centres as well as the college level for students of different faculties. The mechanics of grading system will be explained to them and they will be given proper orientation in the new system. With their active cooperation and participation the efforts of the university in evolving the new examination pattern would soon materialise.

The Vice-Chancellor, Mr. Kanti Chaudhury, has made an appeal to the students for their active cooperation. The new grading system involves both internal and external assessment of students and that is why it is all the more necessary that every student should understand the system to root out all fears and suspicions that he may have in his mind. The schedule for these workshops and training programmes are being finalised. The University Grants Commission would be extending financial assistance for the organisation of these workshops.

Personal

1. Shri M. L. Batra, former Pro-Vice-Chancellor of B. N. Chakravarty University, has taken over as the Vice-Chancellor of newly established Rohtak University w.e.f. 23.4.76.

2. Dr. R. V. Singh has been appointed Vice-Chancellor of Lucknow University for a period of three years w.e.f. 11.5.76.

3. Dr. H. R. Arakeri, Vice-Chancellor, University of Agricultural Sciences, Bangalore, has been selected for the national award constituted by Farmers' Association of India.

4. Prof. Gautam Mathur has been appointed Vice-Chancellor of Utkal University.

5. Dr. G. Rangaswami, Vice-Chancellor of Tamil Nadu Agricultural University, Coimbatore, has been elected as the President of the Association of Agricultural Universities of India for the year 1976-77.

Beginning from this month, in collaboration with the British Council Library in New Delhi, information relating to forthcoming academic conferences, seminars and workshops to be held at different places will be published every quarter in the columns of the University News. Persons requiring any further information or clarification may contact Mrs. M. H. Mody, Reference Librarian, British Council Library, Rafi Marg, New Delhi-110001.
Editor

CONFERENCES, SEMINARS AND WORKSHOPS IN INDIA

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
23rd May—14 June	Workshop on immuno-chemical techniques	Bangalore	Indian Institute of Science (Department of Biochemistry), U.G.C.
31st May—26 June	Environmental aspects of coastal engineering International Course	Poona	Central Water and Power Research Station, Poona.
1st June—10 July	Summer Institute in English Language teaching	Jaipur University of Rajasthan	U.G.C., C.I.E.F.L. & British Council.
1st June—26 June	Optical computers and their applications	Bangalore Indian Institute of Science	Radar Communication Project Office Airforce Station Safdarjang, New Delhi.
2—8 June & 8—14 June	Laboratory for managerial and personnel effectiveness	Bangalore	Indian Society for applied Behavioural Science, Indian Institute of Management, Ahmedabad.
7—19 June	Production management	Hyderabad	Administrative Staff College
14—16 June	Education for the needs of India today and tomorrow	Simla School of Education Himachal University	All India Federation of Education Associations, Kanpur.
14—19 June	Workshop on tests and examinations	Hyderabad, C.I.E.F.L.	Central Institute of English & Foreign Languages, Hyderabad.
14—24 June	XIII tuberculosis control seminar	Bangalore National T.B. Institute	Director-General of Health Services (through National Tuberculosis Institute)
14 June—3 July	Refresher course on microbiology and cell biology	Bangalore	Indian Institute of Science (Microbiology and Cell Biology Laboratory), U.G.C.
16—30 June	Recessional phenomena and quantitative management techniques	Bhubaneswar	Utkal University
16 June—1 July	Advanced Institute of reaction mechanisms	Bangalore	Indian Institute of Science (Organic Chemistry Department) U.G.C.
16—20 June	Alternative futures : the framework of values	Simla	Indian Institute of Advanced Studies
18—20 June	Annual general meeting of the Indian Society of Soil Science (This conference will include a group discussion on the teaching of soil science in Indian Universities)	A.P. Agricultural University Hyderabad	Indian Agricultural Research Institute, New Delhi.
21—24 June	Family planning programme administration	Hyderabad	Administrative Staff College

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
26 June—16 July	17th Advanced management programme	Srinagar Oberoi Palace Hotel	All India Management Association, New Delhi.
Beginning of June	Refresher course in logic and philosophy	Bhubaneswar	Utkal University.
16—19 July	Education for the needs of India today and tomorrow II	Bhopal Regional College of Education	All-India Federation of Educational Association, Kanpur.
25th July	National welding meeting	Calcutta Indian Institute of Welding	Fabrication Division, Bharat Heavy Electricals Ltd., Bhopal.
July	Summer Institute in English for teachers in colleges in Haryana, Punjab, H.P., J & K	Kurukshetra	Birendra Narayan Chakravarty University, Kurukshetra.
2—13 August	Planning and management in nursing	New Delhi	National Institute of Health, Administration and Education, New Delhi.
9—14 August	Management by objectives	Hyderabad	Administrative Staff College
16—24 August	Management for industrial relations	Hyderabad	Administrative Staff College
17—19 August	Seminar on Indian ventures abroad	New Delhi	All India Management Association, New Delhi.
23—28 August	Leadership in organisation	Hyderabad	Administrative Staff College
7—18 September	4th Advanced personnel management programme	Srinagar (or Mussoorie)	All India Management Association, New Delhi.
11—12 September	Xth Urology sectional conference	Bangalore	Association of Surgeons of India, P. G. Institute of Medical Education & Research, Chandigarh
13—17 September	Seminar on Himalayan geology	New Delhi	(1) Geological Survey of India, Calcutta. (2) Nat. Geophysical Research Institute, Hyderabad. (3) Oil & Natural Gas Commission, Dehra Dun. (4) Department of Mines, G. O. I., New Delhi.
26 Sept.—5 October	XIX General Assembly meeting of the International Union of Biological Sciences	Bangalore Indian Institute of Science	Indian National Science Academy, New Delhi.
27—29 September	National Symposium on hydrological problems related to development of power and industries	Kanpur I. I. T.	C. S. I. R., New Delhi
September	All India Seminar on reliability in electronics	Institute of Engineers (India) Bangalore	Institute of Engineers (India) 8 Gokhale Road, Calcutta 700020.
Sept./Oct.	Legal control of environmental pollution	New Delhi	Indian Law Institute New Delhi.

SUBJECT INDEX

Agriculture

Soil Science, Annual general meeting of the Indian Society of

18-20 June

Biological Sciences

Biological Sciences, XIX General assembly meeting of the International Union of Immunochemical techniques, Workshop on Microbiology and cell biology

26 Sept-5 Oct

23 May-14 June
14 June-3 July

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Optical Computers and their Applications

1-14 June

Education

Education for the needs of India today and tomorrow
English for teachers in Colleges in Haryana, Punjab, H.P. and J & K, Summer Institute

I
II

14-16 June
16-19 July

July

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Himalayan geology, Seminar on

13-17 September

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Advanced management, 17th programme
Indian ventures abroad, Seminar on
Industrial relations, Management of
Leadership in organisation
Management by objectives
Managerial and personnel effectiveness, Laboratory for
Personnel management programme
Production management
Recessional phenomena and quantitative management techniques

26 June-16 July
17-19 August
16-24 August
23-28 August
9-14 August
2-8 June
8-14 June
7-18 September
7-19 June

16-30 June

Medicine and Health Services

Family planning programme administration
Nursing, Planning and management in
Tuberculosis control, XIII Seminar
Urology, X Sectional Conference

21-24 June
2-13 August
14-24 June
11-12 September

Philosophy

Logic and philosophy, Refresher course in

June

Physics

Reaction mechanisms,
Advanced institute of

16 June-1 July

Social Sciences

Environmental pollution, Legal control of
Family planning programme administration

Sept/Oct
21-24 June

Technology and Engineering

Environmental aspects of coastal engineering, International course on
Hydrological problems related to development of power and industries
Reliability in electronics, All India Seminar
Welding, National Meeting

31 May
26 June
27-29 September
September
25 July

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Direct Admission-1976

For Rank-Holders Etc.

A limited number of seats in the first year of the 5-year Integrated Programme leading to the degrees of B. Tech in (1) Mining Engineering and (2) Petroleum Engineering, and of Master of Science in (1) Applied Geology and (2) Applied Geophysics at the Indian School of Mines, for the session 1976-77, are reserved for rank-holders in the examinations for Pre-University/Indian School Certificate/Higher Secondary (or equivalent) with Chemistry, Mathematics, Physics and English conducted by recognised Universities/Boards in 1976.

2. Applications are invited in the prescribed form for these reserved seats. Only candidates who have secured at least 60 percent marks in each of the subjects of Physics, Chemistry and Mathematics and are within the first ten ranks in the examination mentioned above, are eligible to apply for admission under this category. However, Scheduled Caste/Scheduled Tribe candidates who have obtained no less than 50 percent marks (in aggregate) in Physics, Chemistry and Mathematics, may also apply for admission.

Candidates who have already appeared for the I.S.M. Entrance Examination conducted this year may also apply for seats under this category provided they satisfy the conditions mentioned above.

3. Only such candidates as were born on or after 1st October, 1955 are eligible to apply for admission under this category. The upper age limit is relaxable by three years in the case of candidates belonging to Scheduled Castes and Scheduled Tribes.

4. For detailed instruction, please see the Memorandum of Information and Application Form which can be had from the Registrar, Indian School of Mines, Dhanbad-826004, by sending a money order for Rs. three only.

Applications in the prescribed form, complete in all respects including rank-holder certificate and marks-sheet should reach the Registrar, Indian School of Mines, Dhanbad by 30th June 1976.

M.S. RAMAMURTHY
REGISTRAR

QUALIFICATIONS : For the posts of Professors, Readers and Lecturers (i) Consistently good academic record with 1st or high 2nd class (B+) Master's degree in a relevant subject or an equivalent degree of a foreign University.

(ii) Either the degree of Ph.D. or an equivalent research degree or published research work of a high standard.

(iii) About ten years' experience of teaching M.A./M.Com./Business Administration classes and guiding research in case of Professors; about 5 years experience in case of Reader for the same classes. Post-doctoral research work; and teaching/research experience will be an additional qualification for the posts of Lecturers.

SPECIALISATION : (i) Professor of Political Science; Political Behaviour

Or Political Sociology (ii) For Professor in Business Administration :

Reader in Commerce and Lecturers in Commerce and Business Administration in one or more of the following Areas :

(i) Finance and Accountancy (ii) Production (iii) Personnel (Human Relations) (iv) Marketing and (v) General Management.

Qualifications are relaxable in the case of specially qualified persons.

QUALIFICATIONS : Sports Officer cum-D.P.E. (i) 2nd class Master's degree in Physical Education from any of the Indian Universities or an equivalent degree from any foreign University.

(ii) At least 10 years' experience in College/University for organising sports and games.

(iii) **Proficiency in Sports.**

A person should have participated in any major games/athletics up to University/State level.

QUALIFICATIONS: For Clerks-cum-Typists: Second class in Matriculation/Higher Secondary/Pre-University Examination with at least 30 words per minute speed in English typewriting. A written test may be given to the candidates.

AGE: For posts at Sr. No. 1 to 4 age limit upto 60 years, for post at Sr. No. 5 age not more than 40 years and for posts at Sr. No. 6, the age limit is from 18 years to 30 years.

REGISTRAR

LUCKNOW UNIVERSITY

Advertisement No. 23/1976

Applications are invited for the two posts of Readers in Hindi in the grade of Rs. 1200-50-130 -60-1900.

Qualifications

Essential: 1 (a) A Doctorate in the subject of study concerned or a published work of high standard in that subject; and

(b) Consistently good academic record (that is to say, the over-all record of all assessments throughout the academic career of a candidate) with first or high second class (that is to say, with an aggregate of more than 54% marks) Master's Degree in the subject concerned or equivalent degree of a foreign University in such subject.

Where the Selection Committee is of the opinion that the research work of a candidate, as evidenced either by his thesis or by his published work, is of a very high standard, it may relax any of the qualifications specified in sub-clause (b) of clause (1).

2. Experience of teaching honours post-graduate classes for not less than five years and published research work of high standard in the subject.

Preferential: Experience of teaching post-graduate class and guiding research.

General
Benefits of Provident Fund available as admissible under the rules on confirmation. Period of probation for permanent posts is one year.

Applications on the prescribed form (available on request accompanied with a self-addressed envelope of size 23 cm x 10 cm free of cost from the Office of the Registrar) with recent testimonials, publications etc. should reach the Registrar, Lucknow University, by Tuesday, June 29, 1976. The candidates, who are in service, must send their applications through the proper channel. Application Forms to out station candidates will be issued by post upto Tuesday, June 22, 1976.

REGISTRAR

We offer

K.S. Giani: Indian Independence Movement in East Asia. The most authentic account of the INA & the azad Hind government compiled from the original official records. With a foreword by Sriyut Sarat Chandra Bose. Part I & II in one book. pp. 144 & 164. Many photographs Jan. 1947. Size: 25 cm x 16 cm. H.B. Lahore. Rs. 25.00
ART BOOK CENTER ELLIS BRIDGE AHMEDABAD.6

INDIAN SCHOOL OF MINES

DHANBAD-826004

Admission to post-graduate Programmes-1976

Applications are invited from candidates possessing requisite qualifications for admission to the following postgraduate programmes at the Indian School of Mines, which is a deemed University under the University Grants Commission Act:

S.N.	Programme	Department
1.	Two-year Industry-Oriented MTech Programme in Mining (Specialisations offered: Mine Planning and Design/Rock Mechanics/Mine Environment/Open-pit Blasts/Mine Safety Engineering).	Dept. of Mining
2.	Two-year Industry-Oriented MTech Programme in Open-Cast Mining	Dept. of Mining
3.	One-year M.Sc. (Tech) Programme in Exploration Geology	Dept. of Applied Geology
4.	One-year M.Sc. (Tech) Programme in Mining Geophysics	Dept. of Applied Geophysics.
5.	One-year industry-oriented DISM programme in Mineral/Coal Preparation. (Candidates desirous of working for MTech degree would be required to spend an additional year on project work)	Dept. of Chemistry, Fuels and Metallurgy

Eligibility requirements:

1. **Industry-Oriented Programme for MTech (Mining):**—A degree or equivalent in Mining Engineering.
2. **MTech Programme in Opencast Mining:**—A degree or equivalent in Mining, Civil, Electrical or Mechanical Engineering or M.Sc. degree in Applied Geology.

Candidates holding qualifications as above, in disciplines other than Mining should have at least one year's approved experience in Opencast Mining. Students holding qualifications in Applied Geology will be awarded the DISM diploma.

3. **M.Sc. (Tech) Programme in Mineral Exploration:**—M.Sc. or equivalent degree in Geology or Applied Geology. Preference will be given to candidates holding qualifications in Applied Geology.
4. **M.Sc. (Tech) Programme in Mining Geophysics:**—M.Sc. or equivalent degree in Geophysics or Applied Geophysics.
5. **DISM Programme in Mineral/Coal Preparation:**—A degree or equivalent in Mining, Electrical, Mechanical or Chemical Engineering or M.Sc. in Chemistry.

In each case, the candidate should have obtained at least 60% marks in the qualifying examination-relaxable to 50% for sponsored candidates and for those with field/research experience or aptitude for research.

Preference will be given to sponsored candidates. (Sponsorship in this context means retention of lien on post and grant of suitable allowance).

Scholarships: Unsponsored MTech students may be granted a scholarship @ Rs. 500/- p.m. and unsponsored M.Sc. (Tech)/DISM students @ Rs. 400/- p.m.

Procedure for applying: Applications are obtainable from Registrar, Indian School of Mines, Dhanbad-826004 on sending a self-addressed stamped (Rs. 2.55 postage stamp) envelope Superscribed 'P.G. Admission'.

Closing date: Completed applications (together with (i) marksheets relating to the final as well as the penultimate year examination of the qualifying examination, and (ii) documentary evidence of practical experience where required) should reach the undersigned by 19th June 1976.

Applications of sponsored candidates should carry suitable endorsement by the employer.

For further details of each programme, the concerned Heads of the Departments may be contacted.

M.S. RAMAMURTHY
REGISTRAR

GURU NANAK DEV UNIVERSITY AMRITSAR

Advertisement No. 12/76

Applications are invited for post of Professor of English in grade of Rs. 1500-60-1800-100-2000-125/2-2500, plus allowances admissible under university rules, on prescribed form obtainable from Office of Registrar, Guru Nanak Dev University, Amritsar by making written request accompanied by self-addressed stamped envelope of 23 x 10 cms. so as to reach this office by June 14, 1976 along with postal order (s) for Rs. 7.50 drawn in favour of Registrar, Guru Nanak Dev University, Amritsar. Higher starting pay may be given depending upon qualification & experience.

QUALIFICATIONS : (i) Consistently good academic record with 1st or high 2nd class (b+) Master's degree in a relevant subject or equivalent degree of a foreign University; (ii) Either degree of Ph.D. or an equivalent research degree or published research work of high standard; and (iii) About ten years' experience of teaching M.A. Classes and guiding research; (iv) Knowledge of Punjabi and a foreign language other than English, will be additional qualification

Bharpur Singh
REGISTRAR

PANJAB UNIVERSITY (CHANDIGARH)

Advertisement No. 5/76

Applications are invited for a post of Reader in the Department of Indian Theatre in the pay scale of Rs. 1200-50-1300-60-1900, so as to reach the Registrar, Panjab University, Chandigarh, by 17.6.1976 along with postal orders for Rs. 7.50.

Qualifications:

Essential:

- (1) A first or second class Master's degree (in any subject) of an Indian University or an equivalent qualification of a foreign university
- (2) Experience of (a) acting
or (b) directing
or (c) producing
or (d) play-writing

Desirable

- (1) A research degree (any subject) of a doctoral standard or published research work of high standard in journals of repute.
- (2) About five year's experience of teaching post-graduate classes at a university or college level and experience of guiding research
- (3) Graduate of the National School of Drama, New Delhi, or Diploma Holder in the Indian Theatre from any of the recognised and well-known universities.
- (4) Sound background in Indian Classical and Folk Theatrical Traditions and research in a field of Indian Theatre.
- (5) Production/participation in radio/TV plays

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date will not be entertained. Serving employees may, however, send their applications on the prescribed proformas direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of a "No Objection Certificate" from their employers. Canvassing in any form will disqualify a candidate.

Application forms can be obtained from the Office of the Finance & Development Officer, Panjab University, Chandigarh, by making a written request accompanied with self-addressed stamped envelope of 23 x 10 cms.

PANJAB UNIVERSITY (CHANDIGARH)

Advertisement No. 4/76

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh by 17.6.1976 along with postal orders for Rs. 7.50

Post and Pay-Scales

Professors (Grade:

- | | |
|---|---|
| Rs. 1500-60-1800-100-2000-125/2-2500 | |
| 1. Professor of Theoretical Physics | 1 |
| 2. Professor of Mathematics (Pure) | 1 |
| 3. Professor of Botany | 1 |
| 4. Professor of Education | 1 |
| 5. Professor of Pharmaceutical Sciences | 1 |

Readers

(Grade: Rs. 1200-50-1300-60-1900)

- | | |
|---|---|
| 1. Reader in Punjabi | 1 |
| 2. Reader in Sanskrit | 1 |
| 3. Reader in History (P.U. Evening College) | 1 |

Lecturers

(Grade: Rs. 700-40-1100-50-1600)

- | | |
|--|---|
| 1. Economics (Permanent-1, Temporary-1) | 2 |
| 2. Mathematics (Pure-1, Applied-1) | 2 |
| 3. Geography | 1 |
| 4. Commerce | 5 |
| 5. Anthropology | 1 |
| 6. Palaeontology (Anthropology Department) | 1 |
| 7. Gandhian Study | 1 |
| 8. Statistics | 1 |
| 9. Pharmaceutics | 1 |
| 10. Microbiology | 1 |
| 11. Education | 1 |
| 12. Philosophy | 1 |
| 13. Psychology | 1 |
| 14. Library Science (Permanent-1, Temporary-1) | 2 |
| 15. French | 2 |
| 16. German | 1 |
| 17. Sociology | 1 |
| 18. Punjabi | 1 |
| 19. Curator-cum-Lecturer in Microbiology | 1 |
| 20. University Evening College, Chandigarh | |
| History | 1 |
| Political Science | 1 |
| Public Administration | 1 |
| English | 1 |
| Mathematics | 1 |
| 21. V.V.B.I.S. & I. S. Hoshiarpur Assistant Director (Admn.) | |

(Grade : Rs. 400-40-800-50-950)

Essential Qualifications

Professors

- (i) A first or high second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the subject with bright academic record.
- (ii) Either a research degree of a doctoral standard or published research work of high standard in journals of repute.
- (iii) About 10 years experience of teaching post-graduate classes at a University or College level and experience of guiding research.

Readers

- (i) A first or high second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the relevant subject with bright academic record.
- (ii) Either a research degree of doctoral standard or published research work of high standard in the subject concerned, in journals of repute.
- (iii) About five years' experience of teaching post-graduate classes at a University or College level and experience of guiding research.

Lecturers/Lecturer-cum-Curator

- (a) A Doctoral degree or published work of an equally high standard; and
- (b) Consistently good academic record with first or high second class (B Plus Master's degree in a relevant subject or an equivalent degree of a foreign University).

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work of very high standard it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctoral degree or equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record (due weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed on the condition that he will have to obtain Doctoral degree or give evidence of published work of equivalent high standard within five years of his appointment.

Assistant Director (Admn.)

- (i) First or second class Master's degree of an Indian University or equivalent qualification of a foreign University; preferably with Bachelor's degree in Law.
- (ii) Experience of drafting both in English and Hindi.
- (iii) Good knowledge of Sanskrit and familiarity with other branches of Indology.

Desirable Specialisations

Professor of Theoretical Physics:

- (i) A potential for leadership for Theoretical Physics research group in general apart from interest in one's own speciality.
- (ii) Knowledge of foreign language/s other than English.

Reader in Punjabi

Research work or published work of an equally high standard in field of

Punjabi Fiction or Punjabi Drama or in a significant period of Punjabi Literature.
Reader in History
 Punjab History.

Lecturers in Economics

Economics of Socialism/Econometrics/
 Mathematical Economics.

Lecturer in Mathematics

Interest in development of under-graduate programme and ability to work with college teachers and under-graduate students.

Note. Applicants should clearly state whether they would like to be considered for appointment in Pure Mathematics or Applied Mathematics.

Lecturer in Geography

- (i) Thorough acquaintance with quantitative methods.
- (ii) Urban Geography Political Geography Geography of Planning.
- (iii) Experience of teaching post-graduate classes.

Lecturers in Commerce

- A. (i) Costing Systems and Control
- (ii) Business Economics Economic Growth and Planning Econometrics, Industrial and Transport Economics.
- (iii) Banking and Finance Advanced financial management Management of financial institutions.
- (iv) Marketing Management International Business.
- (v) Purchasing and Materials Management / Advanced Production Management Management Information Systems
- B. About two years' experience of working in a business house as an Executive or Diploma examination in Management Accountancy of the Institute of Chartered Accountants of India OR Experience in Consultancy firms Industrial undertaking / research organisations.

Lecturer in Anthropology

Primate Behaviour.

Lecturer in Palaeontology

Master's Degree in Physical Anthropology or Geology (with requisite attainments) with specialisation in vertebrate palaeontology and palaeoecology.

Lecturer in Gandhian Studies

Ability to teach Gandhian Thought specially Economic thought of Mahatma Gandhi or Theory and Practice of Non-violence. Certificate / Diploma in Gandhian Philosophy or published work on Gandhian Thought.

Note: Qualifications mentioned at (a) and (b) above should be in Political Science / Economics / History / Philosophy / Public Administration / Sociology, for this post.

Lecturer in Statistics

- (i) Ph.D. in Statistics/Econometrics or equivalent published research work.
- (ii) Experience of teaching post-graduate classes in Statistics.
- (iii) Post M.A. Training in advanced inference, Probability, Multivariate Analysis, Design of Experiments, Sample Surveys, Econometrics and O.R.

Lecturer in Microbiology

Experience of research and teaching in the area of Mycology.

Lecturer in Education

Educational Measurement and Evaluation

Lecturer in Philosophy

Modern Ethical Philosophies, Indian Philosophy or Logic and Methodology of Social Sciences. Knowledge of Sanskrit or other modern European Languages would be considered additional qualification

Lecturer in Psychology

Clinical Psychology Personality Physiology Psychology.

Lecturer in Library Science

- (i) Experience of teaching post-graduate classes in Library Science at a recognised University
- (ii) Knowledge of Hindi and Punjabi

Lecturer in French

- (i) Diploma de Langue from Alliance Francaise or from Sorbonne, the University of Paris
 Or Professorat of Alliance Francaise, France
 Or Diploma Supérieur d'Etudes Francaise Modernes of Alliance Francaise.
- (ii) Training in audio-visual aids in teaching French
- (iii) Diploma in Phonetics; Diploma or Certificate of Post-Graduate Course in the teaching of French language from Central Institute of English and Foreign Languages, Hyderabad
- (iv) Teaching experience in a University teaching Department to the level of Advanced Diploma in French.

Lecturer in German

- (i) Training in Audio-Visual Aids in Teaching German.
- (ii) Teaching experience at the University level.

Lecturer in Sociology

Specialisation in any of the fields, Urban Sociology, Rural Sociology, and Family & Kinship

Curator-cum-Lecturer in Microbiology

Experience in handling, maintenance and preservation of pathogenic organisms.

Lecturer in Punjabi

Specialisation in the fields of Modern Punjabi Literature, especially Modern Punjabi Poetry

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date will not be entertained. Serving employees may, however, send their applications on the prescribed proformas direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of a "No Objection Certificate" from their employers. Canvassing in any form will disqualify a candidate.

Application forms can be obtained from the office of the Finance & Development Officer, Panjab University, Chandigarh, by making a written request accompanied with self-addressed stamped envelope of 23 x 10 cms.

CENTRAL INSTITUTE OF EDUCATION

33-Chhatra Marg, Delhi-7

May 21, 1976

Applications are invited for the following posts in the Central Institute of Education on the prescribed form alongwith copies of certificates supporting the facts mentioned in the applications.

The selected candidates will be admissible for usual allowances like D.A., C.C.A., H.R.A. as are admissible under the Delhi University rules in force from time to time

The prescribed application form can be had from the office of the Central Institute of Education either personally or by sending a self addressed envelope with postage stamps worth Rs. 1.95

Selected candidates will have to produce the original documents relating to their age qualifications, experience etc. before joining the appointment.

Application accompanied by attested copies of the Degree and other certificates and published research articles etc. should reach the undersigned not later than June 21, 1976.

Relaxation of any of the qualifications may be made in exceptional cases on the recommendations of the Selection Committee

1. Coordinator in the pay scale of Rs. 700-1600

Qualifications: Essential:

1. Consistently good academic record with second class (B+) Master's Degree in Education or an equivalent degree of a foreign university in the subject
2. Teaching experience either in higher secondary school or in training college for not less than three years.
3. Experience in organising in-service programmes educational activities

Desirable: A Doctor's Degree or evidence of research work of equivalent standard in the subject concerned

Candidates called for interview from outside Delhi will be paid contribution towards Travelling Expenses equivalent to 1½ Second Class Rail Fare as per rules

2. Accountant in the pay scale of Rs. 500-900 likely to be upgraded to Supdt. (Accts) in the pay scale of Rs. 550-900.

Qualifications: Essential:

- S.A.S. with three years experience in accounts
- B.Com. with five years experience in accounts.

Desirable: Five years experience of Accounts work in a college, University or in any other Institute of higher education.

PRINCIPAL

UNIVERSITY OF JODHPUR JODHPUR

No. JDR:U:ESTT:17149-17208 Dt. 18.5.76
Advertisement No. 5/76

Applications to reach the undersigned by 16th June 1976 are invited for the following posts:

(1) Professors:

(1) English, (2) Hindi, (3) Philosophy, (4) Economics, (5) Geography, (6) Law, (7) Botany.
Pay Scale: Rs. 1100-50-1300-60-1600.

(2) Readers:

(1) English, (2) Sanskrit, (3) History, (4) Philosophy, (5) Economics, (6) Political Science, (7) Chemistry, (8) Zoology, (9) Botany, (10) Geology, (11) Commerce, (12) Civil Engg., (13) Structural Engg., (14) Mechanical Engg., (15) Mining Engg., (16) Law
Pay Scale: Rs. 700-50-1250

(3) Lecturers:

(1) English, (2) Sanskrit, (3) Hindi, (4) History, (5) Philosophy, (6) Music, (7) Home Science, (8) Economics, (9) Sociology, (10) Political Science, (11) Geography, (12) Psychology, (13) Physics, (14) Statistics, (15) Zoology, (16) Botany, (17) Geology, (18) Commerce, (19) Civil Engg., (20) Structural Engg., (21) Mechanical Engg., (22) Electrical Engg., (23) Mining Engg., (24) Electronics & Communications Engg., (25) Law, (26) Rajasthan, (27) French
Pay Scale: Rs. 400-40-800-50-950

Revision of Scale of teachers is under consideration of State Govt

(4) Librarian: Rs. 1100-50-1300-60-1600
(5) Deputy Librarian: Rs. 700-50-1250
(6) Branch Librarian (Engg.): Rs. 375-25-550-10-850
(7) Professional Assistant (Lib.): Rs. 250-20-450-25-625
(8) Junior Technical Assistant: Rs. 160-8-200-10-240-15-360

Posts carry allowances and other benefits as may be admissible under the rules of the University from time to time.

For the application form and other details including qualifications and specialization for various posts, please apply sending crossed postal order for Rs. 2 - (Rupees two only) in favour of the Registrar, University of Jodhpur, Jodhpur alongwith a self-addressed envelope of 24 x 11 cm bearing postage stamps of 85 paise.

Those who have already applied for any of the above posts in response to Advt. 4/74, 6/74, & 7/75 or any other Advt. specified in 4/74, 6/74 & 7/75, need not apply on prescribed form again, but they must send an application on plain paper to state that they desire to be considered for selection.

S. Chakrabarti
REGISTRAR

SRI VENKATESWARA UNIVERSITY

APPLICATIONS are invited for the following teaching posts on or before 30-6-1976.

S.No	Post and Department	No. of posts	Specialisation
(A) S.V. UNIVERSITY COLLEGE: TIRUPATI			
1.	Professor in Mathematics	One	Applied Mathematics
2.	Reader in Statistics	One	Stochastic Process
3.	Professor in Physics	One	Spectroscopy
4.	Professor in Chemistry	One	Organic Chemistry
5.	Readers in Chemistry	Two	(One in Inorganic Chemistry)
6.	Professor in Geology	One	Petrology/Hydrology
7.	Lecturer in Geology	One	
8.	Professor in Zoology	One	Comparative Physiology/Neuro-Physiology
9.	Lecturer in Zoology	One	Reproductive Biology/Ecology
10.	Reader in Geography	One	Agricultural Geography
11.	Readers in Botany	Two	Plant Physiology and Developmental Biology
12.	Lecturers in Botany	Two	
13.	Reader in Biochemistry	One	
14.	Reader in Home Science	One	
15.	Lecturers in Home Science	Three (One Ty.)	(One in Exceptional children specialist)
16.	Reader in Psychology	One	Counselling Psychology
17.	Lecturers in Psychology	Two	(One in Community Psychology)
18.	Readers in Philosophy	Two	(One in Symbolic Logic)
19.	Readers in Economics	Two	Mathematical Economics and Stat./Micro Economics Theory/Monetary Economics/Labour Economics/International Trade.
20.	Professors in Population Studies	Two	(One in Demography)
21.	Reader/Asstt. Directors in Population Studies	Three	(One in Statistical Methods in Demographic analysis and Census material)
22.	Lecturer in Population Studies	One	
23.	Lecturer in Political Science and Public Administration	Two	
24.	Professor in Commerce	One	
25.	Reader in Commerce	One	
26.	Lecturers in English	Three (One Ty.)	
27.	Reader in Telugu	One	Comparative Literature
28.	Reader in Sanskrit	One	
29.	Lecturer in Sanskrit	One	Pali/Prakrit/Telugu
30.	Readers in Education	Two	
31.	Lecturer in Hindi	One	
32.	Professor in Tamil	One (TY.)	
33.	Lecturer in Tamil	One (TY.)	
34.	Professor-cum-Librarian	One	

35. Lecturer in Library Science One
 36. Lecturer in History Two (TY.)
 37. Lecturer in Urdu One (TY.)
 38. Reader in Sociology One
 39. AREA STUDIES :
 a. Documentation Officer One (Non-teaching post)
 b. Reader in Vietnamese Language One
 c. Lecturers in Vietnamese Language and in French Two (One in each)
 40. ECONOMICS :
 Lecturers in Economics/Statistics/Mathematics Three
 41. Lecturer in Spanish One

(B) S.V.U. COLLEGE OF ENGINEERING : TIRUPATI

- | | | |
|---|--------------|-------------------------------------|
| 1. Professor in Mechanical Engineering | One | } Industrial Engineering/Management |
| 2. Lecturers in Mechanical Engineering | Three | |
| 3. Reader in Electronics & Communication Engg. | One | |
| 4. Lecturers in Electronics & Communication Engg. | Two | |
| 5. Lecturers in physics | Two (One Ty) | |
| 6. Professor in Chemistry | One | |
| 7. Reader in Chemistry | One | |
| 8. Lecturer in Mathematics | One | |

(Contd. on page 27)

BERHAMPUR UNIVERSITY
 Bhanja Bihar, Berhampur-7,
 (Ganjam)

No. 3315/Admn/BU/76

Dated the 18th May, 1976
 Advertisement

Applications are invited for the following teaching posts for the Post-Graduate Departments of this university.

Qualification and Experience:

(A) For the Post of Professor

- (i) shall be a scholar of eminence,
 (ii) shall possess a first or second class master's degree with at least 48% marks in the subject
 (iii) shall have a doctorate degree or published work of equivalent standard

Sl. No.	Subject	Vacant	No of vacancies
1.	English	Professor	One
		Lecturer	One
2.	Commerce	Professor	One
		Lecturer	One
3.	Economics	Lecturer (Temporary)	One
4.	Oriya	Reader in Linguistics	One

Scale of pay

1. Professor: Rs. 1100-50-1300-60-1600
 2. Reader: Rs. 700-50-1250.
 3. Lecturer: Rs. 400-40-800-50-950.
 Plus usual allowances as admissible by the university from time to time.
 The scales of pay are likely to be revised.

- (iv) shall be engaged in active research and shall have experience in guiding research.

- (v) shall have teaching experience in a College or a university teaching departments for at least 10 years in the subject of which at least 3

years shall be in the post-graduate classes.

(B) For the Post of Reader in Linguistics:

- (i) at least second class M.A. in Oriya /Hindi/Sanskrit/Linguistics having secured at least 48 percent of marks in the subject.
 (ii) a doctorate degree in Philology or in Linguistics.
 (iii) should have a minimum of 5 years teaching experience in the capacity of a teacher in the P. G. Department.

Or

should have a minimum of 8 years teaching experience in the capacity of a Lecturer out of which he should have taught 2 years in Honours or P. G. Classes.

- (iv) capacity to guide research will be considered as an additional qualification.

(C) For the Post of Lecturer in Economics:

- (i) The candidate shall have a first or second class master's degree (with at least 48% marks) in the subject with specialisation in Mathematical Economics and Econometrics

(D) For the Post of Lecturer in English Commerce:

A candidate shall have a first or Second class master's degree with at least 48% marks in the subject

Note: Experience in research shall be considered as an additional qualification for the post of Lecturer

Seven copies of the prescribed application forms will be supplied to the candidates from the office of the undersigned on payment of Rs. 10 - in person or by bank draft drawn on the State Bank of India in favour of the Registrar, Berhampur University, Bhanja Bihar, Berhampur-7, Dt. Ganjam along with a self-addressed envelope measuring 22 x 10 Cms affixed with postage stamps worth of Rs. 0.85 P

The applications duly filled in along with attested true copies of certificates, testimonials and publications, etc., should reach the undersigned on or before 26.6.76. Applications received after the due date will not be entertained.

Candidates who are in service should apply through proper channel

Persons in Government service selected for appointment shall be allowed leave salary and pension contribution for one year only if they wish to retain their lien under Government.

The prescribed period of experience for the post of Professor and Reader will be calculated up to the last date fixed for the receipt of applications.

Candidates will be required to appear before the selection committee at their own expenses. Selected candidates will be required to join the post within one month from the date of issue of the appointment order.

The advertisement for the post of Professor and Lecturer in English issued vide this office No. 4701 dt. 10.6.1974 stands cancelled.

R. C. Rajguru
REGISTRAR

Advertisement

Applications in the prescribed form are invited for the following posts in the various Departments of Sambalpur University as stated below:-

1. Professor	(a) Sociology and Anthropology	1
	(b) Statistics	1
2. Reader	(a) Sociology and Anthropology	1
	(b) Home Science	1
	(c) Statistics	1
3. Lecturer	(a) Sociology and Anthropology	2
	(b) Home Science	2

Scale of Pay:

Professor: Rs. 1100-50-1300-60-1600

Reader: Rs. 700-50-1250

Lecturer: Rs. 400-40-800-50-950.

(The pay scales are likely to be revised)

Age of retirement: Sixty years

1. Qualification for Professor of "Sociology and Anthropology"

and Statistics:

(i) (a) Sociology and Anthropology. First or High Second Class Master's Degree in Anthropology with specialisation in Social/Cultural Anthropology

(b) Statistics. First or High Second Class Master's Degree in Statistics with specialisation in statistical Inference stochastic Processes/Operation Research/Information theory/ Probability theory/Sampling theory and design of experiments

(ii) A Doctorate Degree or published work of equivalent standard

(iii) Experience of Conducting and successfully guiding of Ph.D. scholars and research work for a considerable period

(iv) Independent published work of High standard in addition to requirement in (ii) above

(v) Teaching experience for at least ten years in a college or University with at least 7 years experience in teaching Post-Graduate/Honours class.

2. Qualifications for the post of Reader in "Sociology and Anthropology"/ Home Science/Statistics.

(i) A First or High Second Class Master's Degree in the respective subjects (a first or high second class Master's Degree in Sociology for the post of Reader in "Sociology and Anthropology") with specialisation as mentioned below:

Sociology and Anthropology:

Specialisation: Sociology.

Statistics:

Specialisation: Statistical inference/ Stochastic Processes/Operation Research/Information theory/ Probability theory/Sampling theory and design of experiments.

(ii) Doctorate Degree or published work of equivalent standard

(iii) Independent published Research work in the journals of international repute.

(iv) Teaching experience for at least 8 years out of which 5 years must be in teaching Post-Graduate/Honours in a College or University.

(v) Capacity to guide Research work. 3. Qualifications for the post of Lecturer in "Sociology and Anthropology"/ Home Science.

(i) A first or high second class Master's Degree in the respective subject and for the post of Lecturer in "Sociology and Anthropology":—

For one Post: First or High Second Class Master's degree in Anthropology with specialisation in Social/Cultural Anthropology.

For other Post: First or High Second Class Master's degree in Sociology

(ii) Teaching/Research experience for at least two years

(iii) Candidates with Ph.D. Degrees will be preferred

A Professor may also be appointed on contract basis for a specified period

The posts carry the usual Dearness allowance as would be sanctioned by the University from time to time.

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 10 - (Rupees ten) only. Candidates intending to receive forms by post are required to send

(a) Crossed Postal Order of Rs. 10/- payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla (b) a self addressed envelope (23 cm x 10 cm) with postage stamps worth Rs. 2 - affixed to it with the words "Application form for Teaching Posts in Sambalpur University" superscribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of applications in the office of the University at Jyoti Vihar, Burla, Sambalpur, (Orissa) is 26.6.76. The candidates will be required to appear for an interview before a Selection Committee at their own expenses.

All communications should be addressed to the Registrar by designation only.

G. P. Gurn
REGISTRAR

UNIVERSITY OF JODHPUR

(Establishment Section)

No. JDR:U:ESTT:17735-94 22.5.76

Advertisement No. 6/76

Applications are invited for the post of System Analyst in Computer Centre, Faculty of Engineering in the scale of Rs. 700-50-1250 plus other allowances as admissible under the rules.

Qualification:

(i) Master's degree in Physics/Mathematics/Statistics/Computer Science or Bachelor's degree in any branch of Engineering with 3 years experience in the respective areas.

Desirable: Experience in Computer programming or system analysis with a reputed organisation.

Higher starting salary is possible to exceptionally qualified candidates.

Application forms can be obtained from the undersigned for which a crossed Indian Postal Order for Rs. 2/- endorsed in favour of the Registrar, University of Jodhpur payable at Jodhpur be sent along with a self-addressed envelope of 24 x 11 cm bearing postage stamps of 85 paise. The last date for receipt of application is 20th June, 1976. The Vice-Chancellor may at his discretion condone delay in receipt of applications.

REGISTRAR

(Contd. from page 26)

Scales of Pay

(i) Professor, Professor-cum-Librarian	Rs. 1100-50-1300-60-1600
(ii) Reader/ Asstt. Directors	Rs. 700-50-1250
(iii) Documentation Officer	Rs. 700-1300 (Non-teaching Post)
(iv) Lecturer	Rs. 400-40-800-50-950

All the above posts carry D.A. and H.R.A. at the University rates.

Prescribed application forms and other particulars can be had from the Registrar, Sri Venkateswara University, Tirupati-517502, on payment of Rs. 5/- either by Andhra Bank Challan or by crossed Indian Postal Order drawn in favour of the Registrar, Sri Venkateswara University. MONEY ORDERS ARE NOT ACCEPTABLE. Separate applications for each post with specialisation, if any, and the Institution should be submitted.

The Syndicate reserves the right to fill or not to fill any or all the above posts without assigning any reasons therefor.

University Office,
Tirupati
Dated : 26.5.76

M.J. Kesava Murthy
REGISTRAR

GAUHATI UNIVERSITY

Gauhati-781014

Advertisement No. 5 of 1976

Applications are invited for the following posts:

1. Professor of Botany. One post (permanent)
2. Professor of Political Science: one post (permanent).
3. Professor of Philosophy: one post (permanent).
4. Reader in English teaching: one post (permanent).
5. Reader in Sanskrit: one post (permanent).
Specialisation: Vedic literature.
6. Reader in Commerce: one post (permanent)
Specialisation: Business Management. Preference will be given to a person holding M.B.A. degree
7. Reader in Business Administration. (5th Plan post). Three posts
8. Lecturer in History: Two posts (permanent).
Specialisation: for one post Modern History with Social & Economic History of India and for the other Medieval History of India
9. Lecturer in Physics One post (temporary).
Specialisation: Electronics Preference will be given to one having M.Tech or M.Sc. Tech degree with Electronics
10. Lecturer in Journalism One post (temporary).
Preference will be given to one who has (1) practical experience in daily news paper in the editorial and/or production side for not less than 5 years and (2) teaching experience
11. Lecturer in Commerce: Two posts (permanent).
Specialisation: For one post a degree in Law or competence to teach corporate Law and Administration For the other post, candidates should state their specialisations
12. Lecturer in Library Science: One post (permanent).
13. Lecturer in Zoology: Two posts (one permanent and the other temporary).
Specialisation: For permanent post special Training in Animal Genetics and for the temporary post Cell Biology
14. Lecturer in Agri. Botany: One post (permanent)
Specialisation: Genetics & Plant Breeding.
15. Lecturer in Law: Two posts (permanent).

Scale of Pay:

Professor: Rs. 1100-50-1300-60-1600.

Reader: Rs. 700-50-1250.

Lecturer: Rs. 400-40-800-50-950

The scales of pay are subject to revision according to recommendations of the U.G.C

All posts carry usual allowances admissible under the University rules in force from time to time and the incumbents will be eligible to pension-cum-G.P.F. cum Gratuity or Contributory Provident Fund as per relevant statutes of the University.

Essential Qualification:

For Professor: (Arts & Science)

(1) Candidates must be recognised scholars in their respective subjects with Doctor's degree or equivalent published work, (2) Continuous research work of merit as evidenced by published papers in standard journals or published work of merit, (3) 10 (ten) years' post-graduate or 15 (fifteen) years' Honours teaching experience, (4) Experience in guiding and promoting research

In case of candidates of exceptional abilities with outstanding research contributions, the requirement of teaching experience may be suitably relaxed.

For Reader (Arts & Science):

In addition to the specialisations mentioned above candidate must have (1) A Doctorate degree or published work of an equivalent high standard (2) Consistently good academic record with First or High Second Class (B+) Master's degree in a relevant subject or any equivalent degree of a foreign University, (3) Evidence of continuous research and (4) experience of 5 years' post-graduate teaching or 8 years' Honours teaching.

For Lecturer (Arts, Science & Commerce):
In addition to the specialisation mentioned against each post candidate must possess (a) Doctorate degree or published work of an equally high standard, (b) Consistently good academic record with first or High Second Class (B+) Master's-Degree in a relevant subject or an equivalent degree of a foreign University.

In the case of a candidate whose research work as evident either from his thesis or from his published work is of a high standard, the qualification under (b) may be suitably relaxed

If a candidate possessing a Doctor's degree or equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record (due weightage being given to M.Phil or equivalent degree or research work of quality) may be considered for appointment on condition that he will have to obtain a Doctor's degree or give evidence of published work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements

In cases where specialisation has not been mentioned against a post candidates should state their areas of specialisation at the Master's and Doctor's degree levels.

For Reader (Commerce):

(a) Consistently good academic record with first or high Second Class (B+) Master's degree in the subject or a relevant subject or any equivalent degree of a foreign University. (b) Doctor's degree or published work of an equivalent high standard or other professional qualification. (c) Evidence of continuous research, and (d) Experience of 5 years' Post-graduate teaching or 8 years' Honours teaching or 10 years' professional experience.

Lecturer (P.G. Deptt. of Law):

Consistently good academic record with first or high Second Class (B+) Master's degree in a relevant subject or any equivalent degree of a foreign University.

Preference will be given to a candidate having Doctor's degree or published work of equivalent high standard.

Higher initial pay may be offered to specially qualified candidates in suitable cases.

Applications in plain paper in quadruplicate giving the full bio-data including (1) Name in full (in block letters) (2) Father's name, (3) Date of birth by the Christian era, (4)(a) Permanent residence and address (in full), (4)(b) Present address (in full), (5) Present occupation if any and name of employer, (6) Present salary drawn (if any) (7) Detailed academic career with mark-sheets and subject studied (including Hons) in degree and post-graduate courses from Matriculation Higher Secondary Education High School Leaving Certificate Examination onwards and copies reprints of research contributions, (8) Name of address of two referees not related to the candidate together with an application fee of Rs. 10 (Ten) & (Rs. 7.50 in the case of Scheduled Caste Scheduled Tribe candidates) by Crossed Indian Postal Order drawn in favour of the Gauhati University payable at Gauhati-781014 post office should be sent in an inner sealed cover superscribed "Application for post of (Name of the post applied for) Advertisement No. 5 of 1976" enclosed in

(Contd. on page 30)

INDIAN SCHOOL OF MINES

DHANBAD-826004

Advertisement No. 615007/76

Dated May 26, 1976.

ADDENDUM TO ADMISSION TO POSTGRADUATE PROGRAMME ANNOUNCEMENT 1976.

In continuation of our Advertisement in which admission to Indian School of Mines postgraduate programmes were announced, it is hereby notified that the M. Tech degree/DISM diploma (Open-cast Mining) has been approved by the DGMS for the grant of concessions (similar to those available to mining graduates) with respect to Managers Certificate of Competency restricted to Open-cast Mines. As already notified, admission to this programme is open to holders of M. Sc. in applied Geology as well.

M.S. RAMAMURTHY
REGISTRAR

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Chemistry

Mathematics

1. Gulati, Tilak Raj. Optimality criteria and duality in complex mathematical programming. I.I.T., Delhi.
2. Gupta, J.R. Some problems in hydrodynamic and hydromagnetic stability. Himachal Pradesh University.
3. Gurdial. A study of error bounds and schemes with fidelity criterion. University of Delhi.
4. Kiriti Prakash. Stability problems in plasmas and hydromagnetics. Himachal Pradesh University.
5. Sharma, C.L. Some problems in fluid mechanics. Himachal Pradesh University.
6. Swaminathan, V. Studies on the family $P(a, q)$ of summability methods and their generalizations. University of Kerala.

Physics

1. Arun Kumar. Propagation of electromagnetic waves through optical waveguides. I.I.T., Delhi.
2. Avatar Singh. Attraction between energy levels in the presence of spin lattice relaxation. Himachal Pradesh University.
3. Awate, Achyut Vishnu. Luminescence studies of $(Zn : Cd)S : Mn : Sm : Cl$ phosphors. Shivaji University.
4. Basu, Parthasakha. A study on the variation of specific ionization of relativistic muons and their charge ratio with momenta. University of Calcutta.
5. Bhagwat, K.V. Some exactly solvable models in the theory of electron states. University of Bombay.
6. Bhalerao, Pramod Dattatray. Study of the ionic structure of certain spinels by X-ray absorption and by some other methods. Nagpur University.
7. Chaudhuri, Parimal Kumar. Analysis of infra-red, submillimetre wave modulation using free-carrier absorption in P-N junction diodes. University of Delhi.
8. Jerzy, Dylewski. Studies on physical properties of silicon implanted with high doses of oxygen ions. University of Bombay.
9. Khanna, Shiv Narain. Lattice dynamics and electrical transport properties of non-simple metals. University of Delhi.
10. Nammalvar, T. A study of the equilibrium and transport properties of the liquid state. Sri Venkateswara University.
11. Nandi, Rahindranath. Studies on vibrational and rotational spectra of molecules. University of Calcutta.
12. Powar, Manohar Singh. Studies on internal Bremsstrahlung in beta decay. Punjabi University.
13. Priyadarshini, Datta Kamala. Angular correlation measurements in some nuclei. Andhra University.
14. Ray, Santi Kumar. On some techniques of frequency entrainment. University of Burdwan.
15. Sankara Narayana. Dharmavarapu Gouri. Deton effects on internal Bremsstrahlung from some forbidden beta decaying isotopes. Andhra University.
16. Santosh Singh. Nuclear quadrupole resonance studies in nitrogen, chlorine and other compounds. University of Delhi.
17. Shah, Sumand Goculdas. Investigations on the spectra of some diatomic molecules $(BaI, SrI, CaI \text{ and } CaCl)$. M. S. University of Baroda.
18. Subrahmanyam, P. Ultrasonic studies in some organic melts and solutions. Osmania University.
1. Acharekar, Ashok kumar Raghunath. Synthesis of heterocyclic compounds. Shivaji University.
2. Adinarayana Reddy, K. O-hydroxy carbonyl compounds as inorganic analytical reagents: Gallacetophenone, its oxime and phenylhydrazone as reagents. Sri Venkateswara University.
3. Afroz, Saiyeda Jabeen. Studies on some leguminous seeds. University of Jabalpur.
4. Bah, Ashok Kumar. Solution chemistry in disulphuric acid. Himachal Pradesh University.
5. Gautam, Raj Kumar. Studies in the chemistry of cyclohexane. University of Delhi.
6. Harish Chandra. Photodecomposition of ethylene-thiocarbonates. Punjabi University.
7. Indrasenan, P. Analytical and thermoanalytical studies on n-halogeno sulphonamides and related compounds. University of Kerala.
8. Mishra, Jitendra Kumar. Annealing studies on some irradiated crystalline nitrates. Utkal University.
9. Mohammed Zakria. Thermodynamic study of transport processes. Bhagalpur University.
10. Mohinder Pal. Studies in bridge head nitrogen heterocyclics: Synthesis of condensed azepines, thiazepines and related compounds. Punjabi University.
11. Muraloodharan Pillai, M. Solvolysis of 1,2-diphenylethyl chlorides. University of Kerala.
12. Palanna, O.G. Studies on some mixed oxide systems of vanadium. I.I.T., Bombay.
13. Parmar, M.L. Thermodynamic and transport properties of some solutions involving dipolar aprotic solvents. Himachal Pradesh University.
14. Ranganathan, S. Synthesis and applications of organic ion exchangers. Saurashtra University.
15. Razvi, Mehboob Razvi Vami Ali. Synthesis of nitrogen heterocycles—phthalazine. Marathwada University.
16. Sahni, Suresh Kumar. Synthesis and stereo-chemistry of metal complexes of substituted thiosemicarbazones. Meerut University.
17. Shah, R.M. Study of metal chelates of oximes and Schiff bases of bromoketones of p-cresol and hydroquinone. Gujarat University.
18. Shekdar, Asha Vishnupant. Kinetics of reactions between metals and solutions of substances in non-aqueous solvents. Nagpur University.
19. Surinder Singh. Study of the analytical application of some organic compounds. Punjabi University.
20. Tendolkar, M.V. Dyes for synthetic fibres. University of Bombay.
21. Yadav, Pankaj Lochan. Physico-chemical investigation of o- and p-halomercury phenols and kinetics of their reaction with iodine. I.I.T., Delhi.

Earth Sciences

1. Bhaskara Rao, D.V. A study of tropospheric disturbances over India during South West monsoon season by spectrum analysis. Andhra University.
2. Pandey, Bal Krishna. Geomorphology and sedimentology of the siwalik sediments in Mohand area, Dehradun and Saharanpur Districts. Meerut University.

Engineering and Technology

1. Agrawal, Ramji. Analysis and design of interconnected skew girder bridges. I.I.T., Delhi.
2. Bandhopadhyay, J. Study of aluminium and aluminium zinc alloys at low temperatures by ultrasonic pulse echo technique. I.I.T., Kanpur.
3. Bhatia, Subhash. Process engineering study of direct esterification of terephthalic acid with ethylene oxide. I.I.T., Kanpur.
4. Bongirwar, Dilip Ramchandra. Improved dehydration : Processes in food preservation. Nagpur University.
5. Dayasagar, I. Studies on gas-liquid two-phase flow in helically coiled tubes. I.I.T., Bombay.
6. Kansal, S.C. Studies on the delignification kinetics of Indian hardwoods by the NSSC pulping process. I.I.T., Bombay.
7. Mathur, S.K. Stress strain time behaviour of anisotropically consolidated marine clay under various stress paths. I.I.T., Kanpur.
8. Mukhopadhyay, Satya Narayan. Studies on the kinetics of gluconic acid fermentation and assessment of volumetric oxygen transfer coefficient by oxygen balance technique. I.I.T., Delhi.
9. Nerkar, D.P. Control of salmonella by gamma radiation. University of Bombay.
10. Rajagopalan, R. Design retrieval and group layout through fuzzy sets and graphs. I.I.T., Kanpur.
11. Rajnish Prakash. A study of drawing and extrusion processes. I.I.T., Delhi.
12. Saxena, Rakesh Kumar. Studies in sonic probe technique for plasma diagnostics. Ravishankar University.
13. Tamaskar, Dinkar Gopal. The steady state stability of synchronous power systems. Nagpur University.
14. Venkateswarlu, K. Some studies on advanced load-frequency control strategies. I.I.T., Delhi.

New Departments for Madras Varsity

The Department of Adult and Continuing Education of the University of Madras has been sanctioned a sum of Rs. three lakhs by the University Grants Commission. The department would be established within two months. The Tamil Nadu Government is likely to sanction a sum of Rs. one lakh for the initial development of the department. The ultimate aim of the university is to have a post-graduate course in adult education. Dr. Malcolm S. Adiseshiah is keen for implementing the non-formal education plan as quickly as possible as it would promote private study at the university. The university is already collaborating with the Madurai and Delhi Universities in organising their correspondence courses in the city of Madras.

The university will also soon have a Department of Fundamental Space Science from the next academic session. Planning and programming of the department has already commenced. The department would be located in

the Adyar-Taramani area in the A.C. College of Technology campus where a number of other technical and research institutes have come up. The university proposes to develop this area as a science and technology complex.

Univ. Farm earns profit

The Gujarat University farm is experimenting in the use of the bacterial culture manure for growing crops on the farm areas. According to Vice-Chancellor, Shri I. J. Patel, one small packet of manure costing Rs. 3.50 would be sufficient to fertilise one bigah of land. The manure helps the growth of bacteria which draws nitrogen from the atmosphere and thus helps the crop. The university farm is lush green with most of its 175 acres covered by wheat, millet, castor, cuminseed and mustard crops. The university along with Sadvichar Parivar had also set up a cattle camp during the last drought. The cattle are now back with their owners following an excellent monsoon. The Vice-Chancellor said that about 1500 maunds of wheat and 350 maunds

AMERICAN STUDIES RESEARCH CENTRE

HYDERABAD

New applications are invited for

LIBRARIAN

to administer the largest library in American studies in Asia. Applicants should have (a) a Master's degree, second class or above, in the humanities or social sciences, preferably emphasizing American studies—a Ph. D. or equivalent published research work preferred; (b) a Master's degree in library science, preferably second class or above (a relaxation of this requirement may be given to exceptionally well-qualified scholars); (c) some American university training preferably in American studies, literature or history, etc.; (d) and should not be over 50 years of age. Grade: Rs 1500-60-1800-100-2000. Applications with specific details must reach the Director, ASRC, Hyderabad-7, by June 20, 1976.

of castor seeds would be harvested shortly on the university farm. The seeds would be marketed through Gujarat Marketing Society. The university has also entered into agreement with the State Agricultural Department for the supply of good quality seeds for the next season. The university farm will grow wheat, millet, jowar, maize, oil seeds and vegetables. Cattle grass will also be grown in the farm. The university farm which employs about 40 people with 2 Ph.D. students also working there is expected to make a net profit of Rs. 50,000 this year.

(Contd. from page 28)

an outer cover addressed to Sri K.C. Bhattacharyya, M.A. (Cal), Registrar, Gauhati University, Gauhati-781014 to reach him not later than 18th June, 1976.

The number of this advertisement and name of the post applied for must be referred to in the application. Persons in employment should apply through proper channel or with no objection certificate from the present employer.

Candidate will be required to appear at an interview if and when called for.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from Periodicals received in AIU Library during May, 1976

EDUCATIONAL PHILOSOPHY

Mathur, Gautam "Schools and centres as seats of research" *University Administration* 2 (1 & 2): Jan-Dec 75: 81-9

EDUCATIONAL PSYCHOLOGY

Disek, Jerome B "Do teachers bias children's learning?" *Review of Educational Research* 45 (4): Fall 75: 661-84

Jackson, Gregg B "Research evidence on the effects of grade retention". *Review of Educational Research* 45 (4): Fall 75: 613-35

EDUCATIONAL SOCIOLOGY

Adreshiah, W.T.V. "Social attitudes of college students in India" *New Frontiers in Education* 6 (2): Apr-June 76: 1-10.

Anderson, C. Arnold "Equality of opportunity in a pluralistic society: A theoretical framework" *International Review of Education* 21 (3): 75: 287-300

Chaudhary, N.D. "Educational development among the scheduled tribes in Rajasthan". *Education Quarterly* 27 (3): Oct 75: 26-30

Malla, Reddy, M. "Alienation and student activism" *University Administration* 2 (1 & 2), Jan-Dec 75: 90-5

Thota, Anand Rao "From disarray to direction: A comment on the Indian university system" *University Administration* 2 (1 & 2): Jan-Dec 75: 77-80

EDUCATIONAL PLANNING

"NATIONAL GRADUATE Scheme: The beginnings" *New Frontiers in Education* 6 (2): Apr-June 76: 39-48

"STOP GO: Waste of scarce resources: The vital need for long term planning" 1 *Bulletin of Current Documentation* (19): June 75: 2-4, 15-9

EDUCATIONAL ADMINISTRATION

Ashby, Eric "Inside threat to academic freedom" *Times Higher Education Supplement* (231): 26 Mar 76: 5

Azad, J. I. "Academic and financial management of higher education" *University Administration* 2 (1 & 2), Jan-Dec 75: 19-27

Chandi, P. T. "Role of the management in building up the college as an academic community" *New Frontiers in Education* 6 (2), Apr-Jun 76: 49-62

Dastoor, Aloo J. "Experiment that never was: A case study" *University Administration* 2 (1 & 2), Jan-Dec 75: 33-8

Francis, John Bruce "How do we get there from here? Programme design for faculty development" *Journal of Higher Education* 46 (6); Nov-Dec 75: 719-32.

Pareek, Uday "Institution building: The framework for decision making" *University Administration* 2 (1 & 2); Jan-Dec 75: 7-15.

Rao, M. R. and Raju, V. B. "Management of a university department." *New Frontiers in Education* 6 (2): Apr-June 76: 19-31.

Sinuh, Dharm P. "Management of educational systems: Managerial and administrative aspects" *University Administration* 2 (1 & 2), Jan-Dec 75: 1-6.

Sirluck, Ernest. "Causes of tightening government control of universities" 4 *Bulletin of Current Documentation* (19); June-75: 10-14.

Toombs, William. "Three-dimensional view of faculty development". *Journal of Higher Education* 46 (6); Nov-Dec 75: 701-17.

"UNWANTED TEACHERS". *Economic and Political*

Weekly 11 (16); 17 Apr 76: 587

CURRICULUM

Bondi, Hermann. "Dangers of rejecting mathematics". *Times Higher Education Supplement* (231); 26 Mar 76: 8-9

Miliband, Ralph. "Teaching politics in an age of crisis: British constitution or class analysis". *Times Higher Education Supplement* (230); 19 Mar 76: 17

TEACHING AND TEACHERS' TRAINING

Furtado, Daphne "Seminar as a learning method". *New Frontiers in Education* 6 (1): Feb 76: 54-7.

Pillai, J. K. "Teacher education programmes and personal growth of teachers" *New Frontiers in Education* 6 (2); Apr-June 76: 32-8

Reddy, N. Y. "Programmed learning: Is it an effective technique in teaching?" *University Administration* 2 (1 & 2); Jan-Dec 75: 45-52

Sequeira, Isaac. "Teaching at the university: Some problems and recommendations" *University Administration* 2 (1 & 2); Jan-Dec 75: 53-65.

EVALUATION

Bhattacharyya, S. K. "Continuous assessment". *Mainstream* 14 (37); 15 May 76: 11-12

Mayer, Richard E. "Information processing variables in learning to solve problems" *Review of Educational Research* 45 (4): Fall 75: 525-41

Sale, Jonathan. "Ghost writer in the exam machine". *Times Higher Education Supplement* (230); 19 Mar 76: 9.

Sheehan, Daniel S. "On the invalidity of student ratings for administrative personnel decisions" *Journal of Higher Education* 46 (6), Nov-Dec 75: 687-700

Wotruba, Thomas R. and Wright, Penny L. "How to develop a teacher rating instrument: A research approach". *Journal of Higher Education* 46 (6): Nov-Dec 75: 653-63.

EDUCATIONAL RESEARCH

Gonlet, L.R. "Longitudinal and time-lab designs in educational research: An alternate sampling method". *Review of Educational Research* 45 (4): Fall 75: 505-23.

EDUCATIONAL TECHNOLOGY

S.K. Singh "Audio-visual aids as educational technology" *Education Quarterly* 27 (3): Oct 75: 4-6

Yadav, M.S. and Govinda, R. "Educational technology without hardware". *New Frontiers in Education* 6 (2): Apr-June 76: 11-18.

PROFESSIONAL EDUCATION

Kay, Jane Holtz. "Architecture education needs a new blueprint". *Change* 7 (5), June 75: 34-8.

ECONOMICS OF EDUCATION

Bodsworth, C. "Solving budget problems by devolution". *Times Higher Education Supplement* (234); 16 Apr 76: 23.

COMPARATIVE EDUCATION AND

COUNTRY STUDIES

"CENTRAL ADVISORY board of education: 38th session (27-28 Nov., 1975, New Delhi)—Address by the chairman, inaugural address and there resolutions adopted by the board". *New Frontiers in Education* 6 (1): Feb 76: 63-82.

Hutchinson, Eric. "Origins of the University Grants Committee". *Minerva* 13 (4): Winter 75: 583-620.

Salamatullah "On road to life: Education in G.D.R.". *Education Quarterly* 27 (3): 75: 31-3.



**If after dreaming up an arithmetical solution
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he can still balance the balance sheet...**

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Give him a late-arrival flight. And a dozen businessmen who've missed their onward connections and swear their allegiance to us! He knows they won't be in the mood for love, not with us — so what does he do—he helps to flex their elbows and all is whole again.

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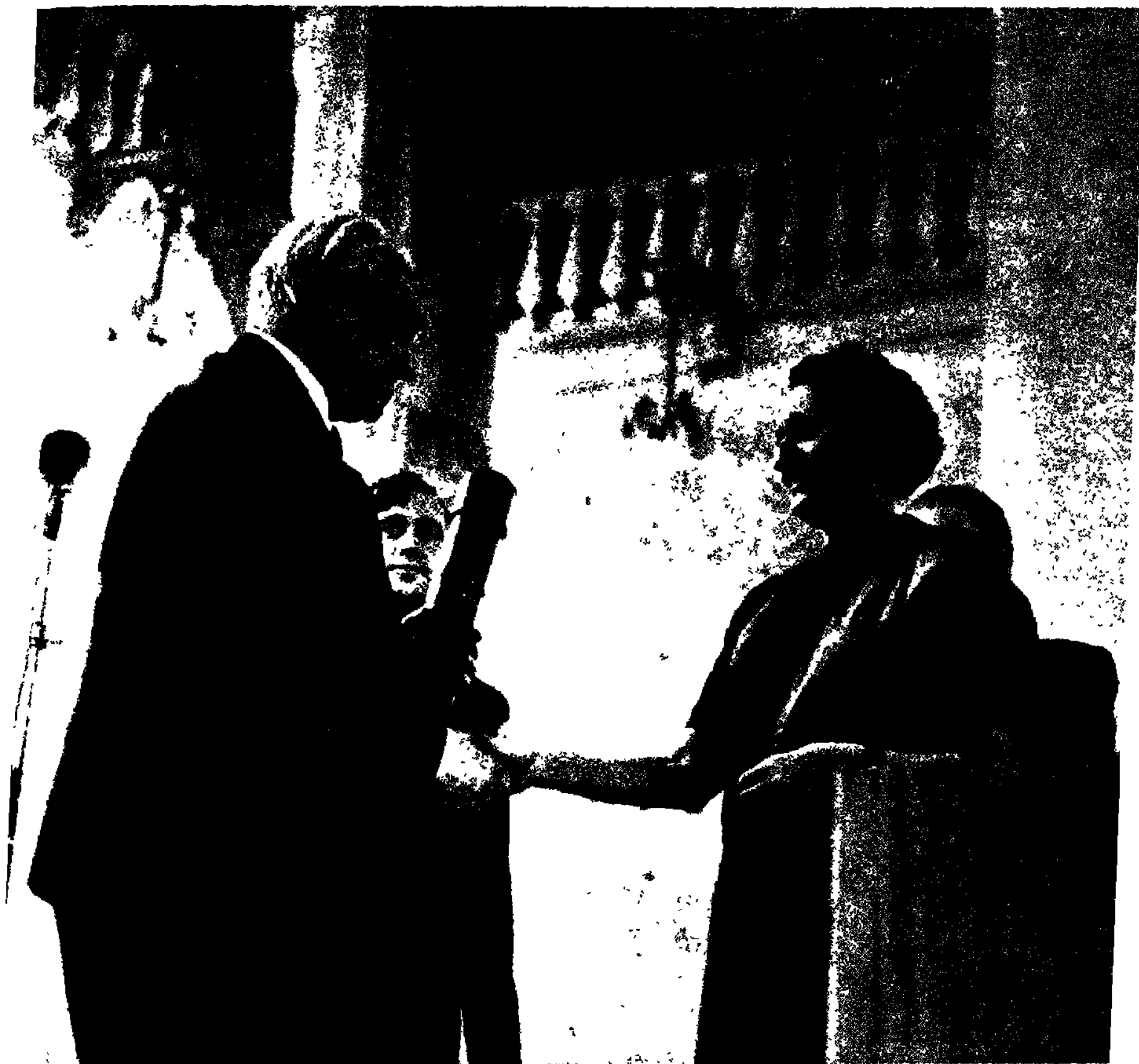
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AIR-INDIA



University NEWS

A CHRONICLE OF HIGHER EDUCATION & RESEARCH JULY 1976 Re. 1.25



The Vice-President of the USSR Academy of Sciences, Academician V.A. Kotelnikov, shaking hands with Prime Minister Mrs. Indira Gandhi before presenting her the Honorary Degree of Doctor of Science at the Trade Union Hall of Columns in Moscow

**INDIAN INSTITUTE OF
TECHNOLOGY, KANPUR
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Advertisement No. 19/76

Applications are invited for 6 posts of Assistant Professor/Lecturer in the Department of Humanities & Social Sciences. One post of Lecturer is reserved for scheduled castes/scheduled tribes candidates. If no SC/ST candidate is found suitable, the post will be treated as de-reserved. Of the six positions, two are in Economics, two in Psychology and two in Sociology.

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Psychology:

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Sociology:

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Qualifications: For the Post of Assistant Professor:

(a) Essential:

- (i) A consistently good academic record in specified (or related) areas of specialization.
- (ii) Doctorate degree with at least 5 years' experience in teaching research with a satisfactory record and a record of independent research. In exceptionally meritorious cases, the Selection Committee may relax the required number of years' experience.

(b) Desirable:

Record of published work in referred Journals.

Qualifications: For the post of Lecturer:

(a) Essential:

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- (ii) Doctor Degree. In exceptionally meritorious cases, the selection committee may relax

the required number of years' experience.

(b) Desirable:

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The Indian Institute of Technology Kanpur has well equipped laboratories and central facilities. The Computer Centre has IBM 7044, 1401 and 1800 and PDP-1 systems as also ICL, CDC 310 and a group of experienced programmers. The Institute has well stocked library with more than 1,50,000 volumes and 1,300 periodicals. The campus facilities include primary and higher secondary schools, a health and shopping centre.

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Those already employed on full-time basis giving full particulars including the Department and area of interest. They should give names of three experts who can comment on the work and competence of the applicant.

All the applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 (U.P. India) on or before 15.7.1976.

Candidates selected will be expected to join by July 1976, to participate in its activities from the beginning of the first semester.

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- (a) Doctorate in Agriculture or in any of the Sciences basic to Agriculture.
- (b) Ten years experience in Teaching and Research in any of the disciplines pertaining to Agriculture.
- (c) Ability to organise and administer undergraduate and post graduate programme in any of the fields in Agriculture.
- (d) Significant accomplishment in the field of research as evidenced from published papers.
- (e) Experience in managing educational institutions at the collegiate level. Faculty level shall be a preferential qualification.

For Post 'B': Essential:

- (a) Graduated Master's Degree.
- (b) At least ten years' experience of educational administration in an executive position preferably at the University level.
- (c) Familiarity with computer or examination and record keeping in an University.

Age:

Preference will be given to those below 50 years of age at the post.

Selected candidates will have to reside at Kanpur and take up their duties when appointed, but there is no domicile test.

Experience and any other merits relating to the recommendation of the Selection Committee in the case of a candidate otherwise exceptionally qualified. A higher initial pay in the scale may be granted on the basis of a candidate's experience and present emoluments.

Applications must be submitted in the prescribed form which may be obtained from the OFFICE of the REGISTRAR, BIDHAN CHANDRA KRISHI VISWA VIDYALAYA, P.O. Kalyani, Dist. Nadia, West Bengal, personally or by sending self-addressed stamped (to 25 paise) envelope (25 Cm. x 12 Cm.) on payment of Rupees eight (Rs. 8/-) only for the Posts by crossed Indian Postal Order in favour of Bidhan Chandra Krishi Viswa Vidyalaya. Persons already in employment should apply through proper channel.

Applications, completed in all respect should be submitted in an envelope superscribed with the name of the post and must reach the office of the Registrar by the 15th July, 1976.

Candidates called for interview will have to appear for the same at their own cost.

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of the Association.*

Editor : ANJNI KUMAR

Role of UGC in University System

The university system of our country is today grappling with a large number of questions relating to the problems connected with the nature and quality of higher education. This does not connote that all or many things are wrong with the system. It only proves that our universities are not complacent but are constantly trying to find out how they can prove to be more useful to the community which they are creating and helping to grow. Our system is taking stock of the situation and is trying to find out what changes in structure and working which are necessary to make it better instrument for the development of the people and the country. This is a sign of vitality and those critics who think that the university system has declined sadly because it is facing so many criticisms are harbouring incorrect ideas. The first step in the process of learning is to ask questions, to analyse ideas and to criticise their

Excerpts from the convocation address of Dr.
S.N. Sen, Vice-Chancellor, Calcutta University
delivered at Nagpur University.

validity or suitability. In the academic world, criticisms and fault-finding are the very breath of life. They signify not decay or decadence but growth and progress. Those who impartially compare the university system around the year 1951 with that of today—after quarter of a century—will have to admit that in spite of the fact that academicians are often very conservative people, a large number of changes, good or bad, have been introduced among the universities. Some of these changes—like the indiscriminate expansion of the sixties for example—no doubt yield many minus points. There are, however, others like the increasing emphasis on science and technology—research and development etc. which have raised the quality of the system. The indiscriminate expansion of the sixties may also be justified to some extent as a historical necessity and has served in a way to make higher education less elitist in nature. In West Bengal, the establishment of a number of universities has served to make higher education available to a much larger number of regions and their people than would have been possible with only one or two universities in the State. One must not forget the fact that in this country—and probably in many others—higher education is a status symbol and also provides a key to many jobs, irrespective of the quality of that education.

Under the Indian Constitution, universities are under the State Government, and except a number of central universities (about six or seven in number) all the other 74 or 75 traditional universities are operating under the State Governments. On the other hand the task of coordinating and maintaining standards in higher education has been entrusted to the Central Government which has set up the University Grants Commission for that purpose. Though the question has not come up in importance as yet, the relationship between the State Governments and the U.G.C. is one of the untrodden areas in the realm of higher education in this country. The problem would not have been important if the UGC remained as only a grant-giving body, channeling central funds to the State universities to enable them to develop in certain ways desired by the UGC. But the Indian UGC is not only a fund distributing agency but is an institution of the Central Government for the maintenance and improvement of standards in higher education. It has therefore a positive role in higher education and is and should be very much interested in the constitution and working of the universities. The undefined and sometimes unsatisfactory nature of the relationship between the State Governments and the UGC will be evident from one fact. The State Governments are free to set up any number of universities within their jurisdiction, and the years since 1960 witnessed a very large expansion in the number of universities. It is not known whether any State Government had consulted the UGC before setting up a new university. The consultation should have been not only as to whether there was a good cause for the new university, but also as to the nature and composition of that university. That the Central Government felt some doubts over this expansion in the number of universities is evident from the provision of the new UGC Act under which it was laid down that if a State Government establishes a new university without the consent of the UGC the latter need not grant any funds to that university. This is the first step in codifying the relationship between the UGC and the State Governments. The efficacy of this instrument in preventing the unplanned growth of universities is yet to be seen. If a State Government insists on the establishment of a new university in spite of the adverse views of the UGC the latter may ultimately have to yield and provide grants to the unwanted new baby. One may cite another instance in which the efforts made by the UGC to improve the constitution and working of universities proved to be ineffective due to the indifference of the State Governments. In the sixties the UGC published a Model University Bill for the guidance of the State Governments. In the seventies another such attempt was made and a committee headed by Dr. Gajendragadkar and consisting of distinguished academicians sat for many months and produced a report on the composition and working of universities. That report is a valuable document. But very few State Governments have paid full attention

to the recommendations of this committee when establishing new universities or reorganising the old ones.

If everybody insists solely on his legal rights without regard to the consequences of such action, as Shylock did in demanding his pound of flesh, it will not only be extremely difficult to work democracy, it will not provide any satisfactory system of Government. Democracy is, of course, based on laws. But it is also equally, if not more, dependent on conventions than any other form of Government. Just as the States have the right to set up any number and type of universities and to influence their working in any way they like, the UGC has also the legal right to maintain and improve standards in the universities. If the rights of the States over the universities are to be safeguarded and at the same time those of the UGC which are also perfectly valid are to be given their due importance, this can be done in two ways. First, the subject, universities is to be transferred from the State list to the concurrent list by suitably amending the Constitution. This proposal is not a new one and has been made from time to time over the last two decades. There are many points both in favour and against this proposal, and these will probably be debated throughout the country. When a subject is included in the concurrent list, both the Central Government and the State Governments can pass laws relating to that subject—in this case, the universities—the Central laws prevailing over the State laws. In what way or ways will this measure help in the task of maintaining and improving standards in the working of universities? The Central Government may, for example, pass legislation providing a broad framework of the composition of the universities, say, on the model enunciated in the Report of the Gajendragadkar Committee, and may require all State Governments to set up universities based broadly on that model while permitting some variations in details to suit local conditions. In this way the efforts made by the UGC to maintain some norms in the constitution and working of universities will not go to waste as is happening at the present moment. Secondly, the extremely defective and hesitant manner in which the question of introducing the new salary scales for teachers in universities and colleges is being handled could have been avoided had the subject universities been included in the concurrent list. The basic objective behind the proposals for the new salary scales is forward-looking, to attract the best students to the teaching profession by placing the Class I teachers on the same footing as the class I officers so as to enable the best students to make a free choice regarding their career, and not an unfairly loaded choice, as has been the practice so far. The future of higher education depends basically on the availability of the best teachers in the universities and colleges. If at present the quality of many teachers in such institutions is taken to be rather low that provides all the more reason for raising salary scales to such levels as will serve to

attract the best talents to teaching. If the present standard among the teachers is found to be unsatisfactory, we must go behind this fact and try to find out the reasons for such a serious situation. When this is done, it will be found that one of the principal factors responsible for such a state of affairs is the payment of comparatively low salaries to teachers as against those who went in for a career in administration, banks, insurance companies and similar organisations. We must redraw our list of priorities. Another factor which will hamper the achievement of the main objectives behind this proposal is the differing conditions attached to the introduction of the new salary scales by different State Governments. Let us be clear about one thing. If we do not believe in the objectives of this proposal, let us say that in plain words and refuse to accept the scheme. But one should not, while accepting the proposal, attach such conditions as would be bound to harm its main objective. If the Central Government feels that it is helpless in the matter as the subject universities, falls in the state list, let us remove this defect and arm the Centre with enough authority to maintain and improve standards in higher education. Whatever may be one's opinion regarding the importance of education in general, higher education with its increasing emphasis on research and development is too important a subject for the future of this country to be left entirely to the States, whose Governments are inevitably subjected to a lot of local pressures. In fact, higher education has more claim, from all points of view, to be placed on the concurrent list than, say, trade unions.

There is another matter in which there is not only a great scope but a serious need for harmonising the main objective of the UGC—coordination and maintenance of standards in universities—with the autonomy of the State Governments. In the seventies, a number of State Governments have promulgated ordinances or passed quick legislations for suspending the administration of universities. If a State Government has reasons to feel dissatisfied with the working of any university or of a number of universities, it has every right to take drastic steps for the removal of these defects. Nobody, including those in-charge of university administration, will deny that while universities must have autonomy in working they must at the same time accept their accountability to the society. There should be some authority to take remedial measures when a university is not discharging its functions properly, and that authority under the present constitution is naturally the State Government. But one must at the same time recognise that the State Governments should in their turn be accountable not only to the State Legislature, but also to the society. So before taking any drastic action against an erring university the State Government should be doubly sure—not only sure that the occasion and the step are fully justified but also sure that its actions have the seal of approval of another independent organisation specially on the subject of universities, i.e. the U.G.C. In other

words, the State Governments should be required to consult the UGC before taking any action in relation to any university or before passing any legislation on universities in the State. After all, the UGC has not only the statutory duty of looking after the coordination and maintenance of standards in all universities in the country, but it is also fully conversant with the working of these institutions on an All-India basis. The State Governments may not always be fully informed about university matters in all parts of India. They are also subject to local pressures, right or wrong, from which the UGC is free. From all these considerations it is absolutely desirable to ensure that while the State Governments should be free to take any action, they consider necessary, in relation to a university or universities, they should at the same time be placed under an obligation to consult the UGC before they decide on the final step. After all, the health of the university system is too important to be left in emergencies to the treatment of only one physician. One should make it obligatory for that physician to consult the expert on the subject.

While these subjects may not raise much controversy from the academic standpoint, one must at the same time recognise the obvious fact that there will be grave political opposition to the inclusion of universities in the concurrent list. The need for forging a balance between the functions of the UGC as the authority to maintain and improve university standards and the power of the State Governments to legislate with respect to universities has to be satisfied through the evolution of suitable conventions. No democratic government is run on the basis of a very strict interpretation of the Constitution and the Laws. A successful democratic government is more a matter of good conventions than purely of laws. If the State Governments agree to accept the dominant role and expertise of the UGC in the matter of universities and to adopt a number of conventions under which they would consult the UGC, before taking any action in relation to the State universities, a way would be open for the satisfactory achievement of the main objective of the UGC which, I think, should also be the objective of all State Governments. Even if it is accepted that in the matter of higher education the States should continue to be the legislative authority, one must also recognise that the country has come to have great confidence in the knowledge and impartiality of the UGC; and as higher education can never be less than of All-India concern, the State Governments have everything to gain if they agree to the convention that they would consult and abide by the advice of the UGC in matters concerning universities.

Role of ICAR in Agricultural Research and Education

Dr. N.K. Anant Rao

The Indian Council of Agricultural Research has been entrusted with the responsibility of assisting and coordinating agricultural research and education in the country. To enable the Council to implement its programme in an effective manner and to give it the status which would enable it to deal with the State Governments and the universities on the same footing as the other bodies of the Central Govt are able to do so, a Department of Agricultural Research and Education (DARE) was established on 1.4.73 in the Ministry of Agriculture & Irrigation. The Director-General, I.C.A.R. is also the Secretary in the DARE. This department is of a small size and where necessary senior scientific and technical personnel of the I.C.A.R. will have appropriate ex-officio status in the DARE. The aim is to completely integrate the administration and technical wings of both DARE and ICAR. These arrangements provide the ICAR with the requisite linkages with the central and state agencies and to deal with the Administrative aspects of international collaboration in agricultural research and education.

The I.C.A.R. discharges its mandate for assisting and coordinating agricultural research and education in the country through (a) ICAR Research Institutes, (b) Agricultural Universities and the Depts. of agricultural sciences and affiliated colleges of general universities, (c) All-India Coordinated Research Projects in the broad area of agriculture, (d) Ad-hoc research schemes funded from the Cess Funds of the I.C.A.R.

I.C.A.R. Institutes : Currently there are 24 national research institutes operating under the ICAR and specialising in specific commodities and fields of research located in the different parts of the country.

Agricultural Universities: Twenty State Agricultural universities, one in each State have been set up by acts of legislation of the respective States and these are catering to the needs of higher education, research and extension education relevant to the requirements of the State. ICAR channels central assistance to them and coordinates their activities. For the States in the North-Eastern Hill region where no agricultural universities exist, ICAR has recently set up an agricultural complex with centres in each of the States in this region to identify research needs which can immediately contribute to effective utilisation of the resources of the area leading to increased production.

A national grid of cooperative experiments undertaken by scientists working in particular fields all over the country is being coordinated and financed by the I.C.A.R. The programme is operated largely

through agricultural universities and in some cases through ICAR research institutes and State Departments of Agriculture, Animal Husbandry etc. These research projects cover important and inter-disciplinary programmes like soil and water management, dryland agriculture, fisheries, animal production etc.

Cess Fund Research Projects : Ad-hoc research projects on basic and applied agriculture supported from the cess funds of the ICAR are operating in a number of universities and research institutes. Additional support is also provided through the US held rupee funds under PL-480.

Transfer of Technology : ICAR has developed special programmes to assist in the transfer of technology emanating from the research under its purview. This is done through national demonstrations, operational research projects and the organisation of Krishi Vigyan Kendras.

A network of demonstrations numbering about 100 is conducted in different parts of the country through the scientists of the ICAR research institutes, agricultural universities and the State departments. Improved production practices emanating from research are demonstrated on one acre plots in farmers fields. The results obtained from these demonstrations help to remove doubts of farmers regarding yield potentialities from recommended practices.

Based on the experience gained in the national demonstrations, ICAR has extended the concept for transfer of technology on area and watershed basis through operational research projects. These are designed to identify the major operational problems in the transfer of technology from research to the cultivators fields. Twentytwo such projects are currently being implemented and cover crop and livestock, arid land management, reclamation of saline and alkali soils, mixed crop in plantation crops, composite fish culture, special programmes like white grub control based farming system, insect pest control in cotton and rice farming etc.

Another attempt in the transfer of technology is the proposed establishment of Krishi Vigyan Kendras. About 35 of these will be set up during the Fifth Five Year Plan. This is an innovative, non-formal educational programme based on the concept of learning through work experience. These Kendras will impart training to the practising farmers and the youth in the rural areas who drop out from the formal schooling and who need training in skills to become productive. The emphasis in these will be to improve the economic well being of small and marginal farmers and landless peasants.

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The agricultural universities which are State institutions but receiving central assistance and guidance from the ICAR have introduced reforms in teaching and examination recommended by the Education Commission of the Government of India. They have also introduced inter-disciplinary programmes of teaching both at postgraduate and undergraduate levels as also in the training for research in their postgraduate programmes. A significant feature of these universities is the determined effort to relate the training of students to the practical problems of farming.

The inter-disciplinary and inter-institutional collaboration for research and education, both formal and non-formal, generated through the work of the ICAR involving its own research institutes, agricultural universities and coordinated research projects and national demonstrations, operational research projects and Krishi Vigyan Kendras provide the country with an effective agricultural research and education system

that have occurred in the pattern of financing of institutions of higher education during the past two decades. An important change has been the increasing responsibility by the Federal and State Governments for providing financial support to these institutions. Fees, which accounted for almost half of universities' recurrent expenditure in 1951, have shrunk to approximately one-quarter of the total. There has also been a sharp decline in private benefactions: from 14% to 10% of recurrent expenditure during the same period.

The rapid expansion of higher education, the fast escalating cost of the educational apparatus, and the apparent inability of the government to provide adequate financial support to university institutions underline the importance of seeking alternative sources of finance. With private benefactions fast declining, it is essential to examine the extent to which fees can contribute to the income of higher education institutions. The problem is, however, multi-dimensional and its socio-political and economic implications need careful consideration.

Need For a Realistic Fee Policy

J.L. Azad

A keen observer of the higher education scene in India cannot fail to discern the cataclysmic changes

Before examining the Indian situation, a brief analysis of the dominant policies in other countries may be of value. In the United Kingdom, the fee contribution to university expenditure accounted for only 8% of the total, an amount which, according to the recommendations of the Robbins Committee, was to be increased to 20% (Robbins, 1961-63). In Canada, the fee contribution was as high as 27.3% of the operating incomes of the universities in 1963-64 (*Financing Higher Education in Canada*, 1965). In Sri Lanka, the students are charged no tuition fees. In West Germany, the fee contribution meets only 5% of expenditure "and many students are exempted from fees including those who receive scholarships". In East Germany, tuition is free. In Australia, fees contribute only 15% to expenditure on higher education. Higher education is entirely free or almost free in Afghanistan, Algeria, Argentina, Brazil, Denmark, France, Iran, Iraq, New Zealand, Norway, Poland, Turkey, U.S.S.R., U.A.R., and Yugoslavia. In Indonesia, the state institutions do charge fees, but "they are nominal charges only." In the U.S.A., private institutions obtain a substantial part of their income from students fees.

Two conclusions can be drawn from the above analysis:

(a) Fee policies adopted in other countries are extremely diverse and offer little guidance in the development of a realistic fee policy for India and

(b) the relative contribution from fees in India does not compare unfavourably with that in a number of advanced and developing countries. Rather, the tendency in most countries of the world is to keep the fee contribution at a low level. There

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is, however, one basic difference between India and most other countries. In India, because of social and democratic pressures and the non-availability of employment to a large body of post-secondary students, higher education of some form is available to almost all aspirants. By contrast, in most other countries, a policy of some selectivity in university admissions is in operation. Given the current financial conditions of stringency, no Indian Government can afford to provide high quality education to an ever-growing number of students, over whose selection it has no control. In this context, a consideration of the extent to which the students can bear an increased share of the financial burden becomes relevant.

The Case for Raising Tuition Fees

(i) The main argument in favour of raising fees is that such a policy would increase the financial leverage of university and college administrators, who are often hampered in their work by a continuous depletion of resources. Harris, one of the most vocal exponents of higher tuition fees in the U.S.A., believes that even the U.S. public exchequer would be unable to meet the increasing costs of higher education without substantial support from students and parents (Harris, 1962). The situation in India is much more critical and calls for quick remedial action if a total collapse of the university system is to be avoided.

(ii) The present system of low tuition fees in India amounts to a substantial subsidy of higher education: in 1968-69, out of an annual recurrent expenditure per student of approximately Rs. 1000, only about Rs. 259 were provided by student fees. If the non-recurrent expenditure per student is also considered, the fee contribution would then fall to 15%. Since this subsidy is given indiscriminately to rich and poor alike (the largest number of beneficiaries are from the more affluent classes who can more easily afford to provide higher education for their children), the system is, to say the least, inequitable.

(iii) Low tuition fees are inconsistent with the "open door" policy in higher education adopted by Indian Universities. An increase in tuition fees would reduce the scramble for places in higher education, a demand which is often unrelated to students' capacity to benefit from such education. The resulting reduction in demand would enable the state governments to utilise their financial resources to improve the quality of education rather than to expand the institutions in order to accommodate ever-rising enrolments.

(iv) Even if one concedes that the mechanism of demand and supply cannot be the sole determinant in the pricing of the educational system, it is however reasonable to expect the beneficiaries of the system to bear a reasonable part of the escalating costs. In India, there has been almost no increase in student

fees during the past two decades, although the wholesale price index has registered a three-fold increase. The result of this "low-cost" education has been a continuous deterioration in the quality of higher education—a situation which cannot be viewed with equanimity.

(v) College education increases substantially the earning capacity of those so educated, and if these beneficiaries were to be called upon to pay for their education, they would not be substantially worse off from such a change in policy.

The Case Against Raising Tuition Fees

(i) Higher fees would provide a disincentive to poor students considering continuing their education at the collegiate stage. As stated by Russel, (1965):

...The trend in fee charges to college students has been steadily upward for a long time. Yet it is manifestly contrary to public policy in the United States to allow higher education to become the privilege chiefly of those in the upper economic brackets... (p. 302).

Allen and Axt (1952) have expressed the fear that an "increase (in fees) would run counter to the prevailing philosophy in higher education which has, right or wrongly, identified equal opportunity with low tuition fees and it is unlikely that higher fees at state institutions would be generally acceptable" (p. 167).

(ii) Education, particularly higher education, has a positive correlation with economic production, as studies by Schultz, Denson, and Nallagounden have indicated, and hence society has as large a stake in the development of higher education as does the individual. In fact the social benefits of higher education far outweigh the private benefits. It would therefore not be legitimate to force students to contribute more than a minimal share towards the costs involved.

(iii) In developing countries like India where, for various social and economic reasons, preference is given to boys' education, any rise in fees would provide a disincentive to parents to send their daughters to colleges and this would retard the growth of girls' education.

(iv) In the current situation of "student unrest" it would be unwise to give students further reason to protest and disturb academic life on university campuses.

To conclude: it is difficult to deny the validity of the arguments for and against raising the current level of fees at the higher education stage. The crux of the problem, in the Indian situation, is that whilst the raising of fees is justified as a measure of mobilising much needed additional resources, such action should not restrict the flow of talented but economically disadvantaged students to institutions of higher education. Further, it should not appear as an anti-egalitarian measure and cause resentment

on the part of the Indian people, who are already suffering from a substantial rise in the cost of living. Considered in this context, an indiscriminate increase in tuition fees would not appear to be the answer.

A Suggested Programme of Action

When considering the totality of the Indian situation, a suggestion that merits serious consideration is the introduction of what may be called a "differential" fee system i.e. higher fees (broadly on the cost of service principle) being charged to student who are not regarded as being suitable for higher education, and the usual fees from those regarded as academically suitable—coupled with a large scholarship programme for this category of students. This would also necessitate special consideration for disadvantaged students.

There are a number of difficulties involved in implementing this type of reform. The main arguments against this proposal are that it is not practicable to introduce such a scheme on a large scale, and it is somewhat discriminatory. It is believed, however, that whilst this proposal may provoke opposition and may also result in some hardship to those intending to enter higher education, the long term advantages of this proposal outweigh the disadvantages, and the suggested reform in the fee structure warrants serious consideration and implementation for a trial period.

It should be noted that there are indeed precedents for the proposal. In the United Kingdom a variant of the differential fee system, which is discriminatory in character, was announced by Mr. Crosland on 21st December 1966. Under this scheme students from outside the United Kingdom were to be charged a higher level of fees than home students. However, this action was resented by the Committee of Vice-Chancellors and Principals, who objected to the differentiation between fees for home students and those for students from abroad (University Grants Committee, 1968).

The Canadian Commission on Financing Higher Education in Canada has recommended another type of 'differential' fee system: "those who can afford to, should pay a substantial part of the cost and all who benefit should bear some part of the total cost of their education" (*Financing Higher Education in Canada*, 1965)

Implementation of the Proposal

The first step is to evolve suitable criteria for assessing the intellectual capability of students desiring to enter university courses. This must be done with caution and objectivity since any miscarriage of evaluative procedures would do incalculable harm to the future careers of aspirants. The assessment could be based on a combination of variables, e.g., performance in the school final examination; special admission tests conducted by universities, and the ranking of student on the basis of cumulative records of achievement kept in the final years of secondary education. In

fact, initially it would be desirable to err on the side of liberality. As experience is gained and tools of evaluation are developed, the operation of the scheme can be perfected.

Based on these criteria, students would be classified into

(a) those deemed suitable for higher education, and

(b) those rated as incapable of profiting from higher education of any description.

Both types of students should be awarded certificates indicating the category into which they have been placed. On the basis of their relative position, students in category (a) may be declared eligible to join any university or collegiate institution depending upon their specialisation—subject, of course, to the availability of places. They should be charged the usual rates of fees. Category (b) students, who are not rated as being suitable for higher education, may also be free to enter universities and colleges, but should be charged fees mainly on the "cost of service" principle, that is, they may be expected to meet the full recurring cost of education.

In implementing the above suggestions, the following precautions would be necessary:

(i) There should be a comprehensive scheme of scholarships covering the students in category (a). The scholarships would meet a sizeable part of educational as well as living costs.

(ii) Special consideration should be given to students from educationally disadvantaged classes and areas. It is suggested that initially a fixed percentage of university places should be reserved for this category of student and the best amongst them should be admitted regardless of the category to which they have been assigned. This is essential to ensure justice to these socially backward groups.

It is not claimed that the above system could be operated perfectly or that there would be no mistakes of omission and commission. It is admitted that under the present system of evaluation, it is difficult to measure precisely the degree of intellectual proficiency of students on a large scale. It is, however, suggested that should some of the "non-university" (b) category entrants perform better than anticipated it should always be open for the universities and colleges to transfer them to the usual fee-paying category and they may even be eligible for scholarships. This system will not only enable the meritorious students to undertake their educational pursuits without any financial difficulties, but, by making it difficult for the "non-university" type students to enter university institutions, it will reduce the ever-increasing scramble for university places of the last few years.

[Courtesy : Higher Education,
Amsterdam, Netherlands]

ROUND UP

UGC's proposals for streamlining higher education

The University Grants Commission has provided incentive to the colleges in the States of Meghalaya, Nagaland, Manipur, Arunachal Pradesh and Mizoram for proper and speedy developments. In their case adequate grants would be sanctioned even if there was a strength of 200 students per college. The Commission would also start student centres wherever 1000 students are available at a particular place of study.

Prof. B. Ramachandra Rao, the newly appointed Vice-Chairman of UGC while briefing the press in Visakhapatnam said that during the fifth five year plan a sum of Rs. 210 crores has been allocated to the UGC. Out of this amount 52 crores would be spent in the first two years. The expenditure during third year would be about Rs. 45 crores.

The Commission has also decided to publish a comprehensive book list containing the various schemes, proposals and activities of the Commission.

To check the unplanned growth of institution of higher education especially the setting up of new universities, the Commission in a circular to the State Governments has urged them that before formulating their proposal for establishing a university or any institution of higher education, they should undertake a detailed survey of the existing institutions and their project needs. The Commission should also be associated with this survey from the very beginning. During fifth plan, the Commission is anxious that the funds are utilised by universities and colleges primarily for strengthening and improving quality of teaching

and research and extension of facilities. The Commission is also concerned that students admitted for higher education should have the necessary aptitude and ability to benefit from courses at advanced level. The Commission feels that the postgraduate teaching should be concentrated as far as possible in university departments rather than allowing individual college to start postgraduate departments.

ICAR moves to attract farm scientists

Dr. M. S. Swaminathan, Director-General, Indian Council of Agricultural Research, recently announced the new promotion policy for the Council. The changes have been brought in to overcome the difficulties faced in the past and to match the needs of the scientific and educational character of the organisation. Hereafter promotion in the Council would be irrespective of number of vacancies and would be based on the assessment of five years' work. Earlier every post was taken as an individual post and was duly advertised. Under the proposed scheme, posts would be advertised only if no one is available from within the organisation to fill in the vacancy.

The Planning Commission has also accepted the proposal of the Council to create professional chairs. Ten posts of 'professors of eminence' and twenty-five posts of 'national fellows' would be created to help the development of basic research. The professors of eminence would draw a salary of Rs. 3,000 while the national fellows would be in the scale of Rs. 1500-2500. They would do full-time study of the basic aspects of their discipline on which applied research can be mounted.

Farm Science Centres popularly

known as Krishi Vigyan Kendras would be set up at 25 centres where teachers would be trained initially for the development of agriculture. These Kendras would be located in the first phase in the hilly regions, drought and flood prone areas, forest, coastal and tribal areas and those dominated by small farmers and landless labourers.

A Central Staff College in Hyderabad would be established to train probationers for the newly constituted Agricultural Research Service. All those who are ranked to the initial grade of ARS will have a regular training programme for a year before being posted to various ICAR Institutes. The first training programme would commence in August. The training would be phased in three parts. The first phase will cover areas like structure and organisation of the Indian Agricultural Research Society and the objectives of the Agricultural Research Service. The second phase will consist of on-the-job training in different ICAR institutions to which the scientists have been recruited. They will undergo training both in theory and practice in the modern methods of experimental work in their particular discipline. In the final phase the trainees will come back to the Staff College for a rounding up.

Guidelines for correspondence courses

The University Grants Commission has favoured the starting of the correspondence courses at undergraduate and postgraduate levels only at those places where well established teaching departments have been in existence for a long time and the departments are known for their high standards. A correspondence course at the postgraduate level should be started only by those universities who have the experience of running undergraduate level correspondence courses in that subject for at least three years. In the absence of good teaching departments to conduct these courses

the standard of teaching is bound to deteriorate. Hence the academic responsibility for the contents of the course in a given subject and its standard must be taken by the corresponding subject department in the university.

While formulating the guidelines for the Universities for the fifth plan period, the Commission has sanctioned Rs. 5 lakhs for the introduction of courses at the undergraduate level for the plan period and Rs. one lakh per subject per year for a five-year period for the postgraduate level. This grant would be outside the plan allocation of the university concerned and should be utilised mainly for programmes which are vital to a correspondence course like contact programme, study centres, writing of lessons, core staff for the correspondence institute and the library facilities.

The objective of correspondence education is to provide the alternative method of education to enable a large number of persons with necessary aptitude to acquire knowledge and improve professional competence. These courses are intended to cater to students who had to discontinue education owing to some special circumstances.

The Commission is also of the view that the correspondence courses at the undergraduate level should be introduced by only one university in a State. When a university proposes to introduce such a course in a new faculty or when the university already offering correspondence course reaches the optimum capacity, special stress has to be laid on the standard of instructional material that is mailed to students. Lessons should be written by the best available persons individually or in teams of three or four selected on all-India level or at least at the State level from those who have taught the subject for at least five years. The Director of Correspondence Courses should convene committees of seven to nine members for each

subject to recommend teachers for the writers panels. High priority should be given to the setting up of study centres in areas where there are over 500 students for such courses.

Costly Medical Profession

A random analysis of the expenditure on public and private account shows that it takes nearly Rs. one lakh to train a young man into a doctor. The cost of training a medical graduate in 1964 was about Rs. 80,000. This included Rs. 50,000 spent on teaching and administrative staff, salary and equipment and Rs. 18,000 on hospital services for teaching purposes and Rs. 12,000 as maintenance expenditure for the student.

With the recent rise in prices and cost of equipment, the expenditure incurred by Government on a medical graduate upto MBBS level would go upto Rs. one lakh.

A medical student has also to spend Rs. 30,000 to Rs. 50,000 on his own in addition to Govern-

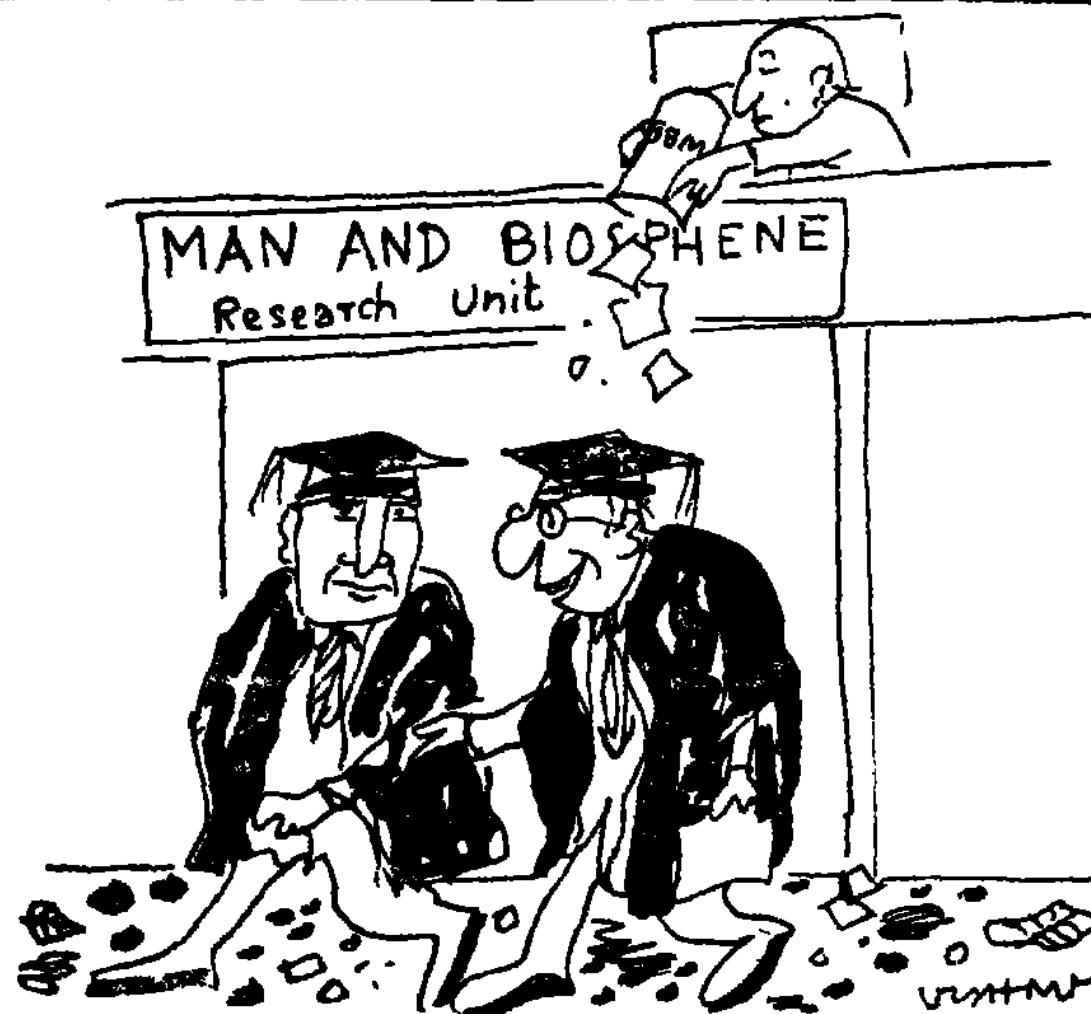
ment expenses. In some cases medical colleges also ask for contribution to college development fund which range from Rs. 5,000 to Rs. 75,000 as extra charges.

If the student wants to do the postgraduate work he has to further spend a minimum of three years after one year of house surgeonship in any particular discipline. This is now in addition to one year of internship.

In India there are 106 medical colleges from which over 12,000 medical graduates come out every year. It costs the government Rs. 25,000 per bed per year in any standard hospital.

Andhra Ordinances provide for students representation

The Andhra Pradesh Governor recently promulgated an ordinance amending the Acts of the three universities in the State—Osmania, Andhra and Sri Venkateswara—to bring about uniformity in the constitution of the governing bodies and service



"I've an assignment to go abroad on a lecture tour to teach them to become environment-conscious..."

conditions of the non-teaching staff. The ordinance further seeks to abolish the post of Pro-Vice-Chancellor and provides for the first time student representation in the Senate of the three universities. It also seeks to raise the emoluments of the Vice-Chancellor to Rs. 3,000.

A separate forum—Council of Affiliated Colleges—with the Vice-Chancellor of the Universities as its Chairman has been created to look into the problems of affiliated colleges. The Council would meet at least twice a year and make recommendations to the concerned authorities of the university regarding the academic and administrative problems of the affiliated colleges and maintenance of their standards. Uptil now the Syndicate of the various universities was looking into the problems of the affiliated colleges.

For the first time all members of the governing bodies of the universities—Senate, Syndicate and Academic Council—would be nominated thus eliminating elections to some of the bodies. In the process, the graduate constituency is also abolished. This will free the universities from politics and would enable them to concentrate on academic pursuits.

The ordinances provide for the appointment of full-time Finance Officer with the consent of the Syndicate. Hitherto the financial aspects were being looked after by the Deputy Registrar or the Financial Adviser.

Mysore decides to abolish third divisions

The Mysore University has decided to abolish third class in its examinations and viva-voce tests. The practice of insisting on attendance requirements and the introduction of semester system are some of the other changes being introduced at the postgraduate level from the next academic session. Mr. D.V. Urs, the Vice-Chancellor, is very keen to introduce the scheme of continuous

assessment of students' capacity. The university would arrange an examination at the end of the first month, second month and the fourth month. The result of each of these examinations would be announced within one week of the test. Those failing in the examination would have an opportunity to appear again for the examination which would be held within fifteen days of the first examination.

The practice of having external examiners will also be discontinued. If there was any malpractice on the part of the teachers, the whole department would be held responsible. The university authorities have also decided to relax the age limit from 50 to 25 year for candidates appearing for any examination of the university without insisting on their basic qualifications. This would fit into the Mysore University's 'open university' system which would come into being on the eve of inaugural function of the diamond jubilee of the university during this year.

Bihar disaffiliates 50 colleges

According to the decision of Bihar State Government 50 disaffiliated colleges would be merged into the nearby viable colleges. These colleges were disaffiliated earlier due to lack of adequate number of students on their rolls. They also lacked proper building and laboratory facilities. The university authorities are trying to amalgamate these disaffiliated colleges with viable units. Earlier the Government had laid down the guidelines for affiliation of the colleges. It had stipulated that to qualify for affiliation, the college in rural area must have at least seven acres of land and that in urban area at least three acres. It must also have a permanent building of its own. The degree colleges must have a minimum of 400 students on its rolls. Besides, the college must provide for at least four big halls, four laboratories for practicals with adequate equipments, four tutorial rooms

and a library with at least 2000 volumes of books worth about Rs. 20,000. This apart the college must be able to provide 10% hostel accommodation for students in urban areas and 20% in rural areas.

The construction and maintenance of university buildings in the State have also been entrusted to the Public Building Construction Corporation. The cost of maintenance of old buildings is estimated at Rs. 3 crores during the next three years. The Government is proposing to spend Rs. 1.75 crores over the new buildings and maintenance of old ones of constituent colleges during the coming years.

UGC & NCTE Coordination

The need for a thorough overhaul of the teachers education programme in the country was stressed at the two-day joint session of the University Grants Commission and the National Council for Teachers Education panels which met in Delhi recently. It was suggested that the UGC and NCTE must work together linking funds with programmes of development. The joint session also recommended that an approach paper for teachers education should be prepared on the same lines as the NCERT's paper on ten-year school and vocationalisation of higher secondary education. This approach paper should be placed before a national conference of teacher educator to be convened by the end of the year. The paper should be jointly prepared by the UGC panel on teacher education and the NCTE for which the NCERT would provide operational structure.

The joint session also approved

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the graduate and postgraduate teachers training programmes for nursery and elementary education prepared by the NCTE. These specialised programmes were necessary because the education and training of teachers for the primary level had been handled by those trained for secondary education. This had adversely affected the primary education.

500,000 New Hindi Terms

The Commission for Scientific and Technical Terminology which was set up by the Union Government for the production of literature in the Indian languages for graduate and postgraduate studies, has published 500,000 Indian terms in humanities, social sciences and professional subjects. It has brought out 900 standard works with the coordinated efforts of Hindi Granth Academies.

According to Dr. Harbans Lal Sharma, Chairman of the Commission, work has started on a project to prepare a number of bilingual and trilingual dictionaries with the object of making Hindi a vehicle of communication for various stages. Bilingual dictionaries are under preparation with the collaboration of countries like France, Yugoslavia, Italy to popularise Hindi abroad.

Books in Hindi in all subjects for arts and science courses for postgraduate degree were now available at low prices. These books have been distributed in backward areas and made available to poor students through the book bank scheme of the University Grants Commission.

New developments in National Library

The National Library, Calcutta, will now onwards be governed by an autonomous Board. This step will go a long way in building up the library movement in the country. Prof. Nurul Hasan, Union Education Minister said that the Government would further examine suggestions on how a library movement could

be built up and how the National Library could be a pace-setter in this direction.

The National Library formerly known as the Imperial Library is an institution of national importance. At present it caters to the needs of undergraduate students of Calcutta University but it is hoped that after the university organises its own reading facilities, its students would stop coming to the library and it would be available to bonafide research scholars only.

Professors of eminence

The University Grants Commission has provided guidelines for the selection of 'professors of eminence' to the universities. They will draw a salary of Rs. 3,000 per month. Initially 100 such professorships would be created during the fifth plan period and would be dispersed suitably over various disciplines or inter-disciplinary studies.

The selection of a 'professor of eminence' is basically a recognition of the contribution made by him to knowledge or its promotion. The universities would propose names of persons for being selected as professor of eminence only when they are satisfied that the professor concerned has reached a very high level of academic distinction and is capable of fruitful work himself as well as of guiding and inspiring others. The Vice-Chancellors would also be requested to make proposals in consultation with either the dean of the faculty or school concerned in the university or with any professor of the subject concerned. After preli-

minary evaluation of work done by professors, the Commission will have separate sub-committees in the field of humanities and social sciences, physical, natural and earth sciences, agricultural sciences, engineering and technology and medical sciences. After this assessment, the sub-committee will consult panels of referees before recommending names to the Commission for consideration. This sub-committee will inter-alia point out the importance and significance of the work done by the professor whose name is recommended. Where a proposal made by a university is accepted by the Commission, the university Executive Council may appoint a person recommended as a professor of eminence. The Commission will reimburse the university the difference in salary on a recurring basis. Such professors will be permitted to hold part-time appointment in another university or institute of higher learning. If a university desires to invite as a professor of eminence an outstanding person working in a institution other than a university or institution abroad (provided he is an Indian national) the UGC will assist such universities by meeting the salary difference to make it Rs. 3,000. The university concerned agreeing to pay Rs. 2,000 as basic salary and allowances admissible to a university professor.

M.Com courses to be updated

The Commerce Department of Madras University would soon introduce work experience as an integral part of the M.Com course. Provisions for field visits

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and field placements would be made by the university for its postgraduate study which would be followed by thesis and viva voce. The revision of the course in Advanced Accountancy is being done with a view to make it a compulsory core subject at the postgraduate level.

The participants to the postgraduate orientation course for Commerce conducted at Madras University highlighted the importance of having discussions with professional experts on different aspects of the subject so that they are exposed in the latest developments in the field. A multi-disciplinary approach in the teaching of subject at the postgraduate level was also suggested.

Psychological Survey of India

While inaugurating the diamond jubilee celebrations of the Psychology Department of Calcutta University, Dr. R.G. Chatterjee has made an appeal to the Indian Science Congress to urge upon the Union Government to set up a Psychological Survey of India on the lines of Anthropological Survey for the proper development and improvement of the man-machine system. The utility and usability of the psychological science was well recognised in the developed countries that were taking psychological approach in every sphere of life from child rearing to human relation.

Dr. S.N. Sen, Vice-Chancellor of Calcutta University, endorsed the proposal of Prof. Chatterjee. He said that the impact of psychology has been remarkable on human mind and behaviour due to intensive studies by scholars and pioneers of this science.

Boost for Mushroom cultivation

The Chandra Shekhar Azad University of Agriculture and Technology recently set up at Kanpur has launched a programme for the promotion of mushrooms. The scientists working on this problem have been

able to devise simple training methods by which the cultivation of mushrooms can be learnt easily even by lay persons.

Prof. K. N. Kaul, Vice-Chancellor of the University, is very enthusiastic to develop this cultivation. According to him so far mushrooms of temperate type had been grown. But the quantity of temperate mushrooms produced in the country was far too inadequate to meet the requirements and the price was also very prohibitive. The tropical and sub-temperate mushroom, the cultivation of which the university is proposing to promote, would be grown easily under natural conditions prevailing in the plains on a cheap substrata like paddy straw with little investment and good return.

The university is making available to the people the technical know-how of mushroom cultivation through correspondence, practical training programmes in the Department of Plant Pathology and demonstration in different parts of the city. The spawn of the seed material is also prepared and supplied to the growers. The mushroom cultivation scheme of the university started in April, 1976 with the establishment of the university centre and has been well received throughout the country. Already trainees have come to the university from far off places like West Bengal, Maharashtra, Gujarat and have gone back to their States fully equipped to grow mushrooms for their own use or on commercial scale. In Kanpur itself, more than 30 demonstration beds have been laid under the supervision of the university staff at different places. As a result of the training and extension programmes, a number of persons in the State have taken to cultivation of edible tropical mushrooms on a regular basis. Mushroom cultivation has also been introduced as a farmer's activity in many adjoining villages. The university hopes that as more and more farmers and city people take to mushroom cultivation

first as home industry and later as cottage industry, the increased mushroom production will make it possible for common man to include mushroom in his daily diet. Besides providing additional food, mushroom consumption will help supplement protein in the protein deficient vegetarian diet.

USSR Academy of Sciences Elections

The USSR Academy of Sciences has honoured Professor S. Nurul Hasan, Union Minister of Education and Social Welfare, by his election as its Foreign member.

He had been Professor of History in Aligarh Muslim University for seventeen years before becoming a Minister. He was also the Director of the University's Centre of Advance Studies in History. During this period, historical studies in the university were extended to include archaeology, social and academic history besides history of sciences and the fine arts.

A visiting Fellow of the All Souls' College, Oxford, a visiting professor of the Indian Institute of Advanced Study, Simla and President of the Indian History Congress, Prof. Hasan also holds a professorship in History in the University of Delhi.

The USSR Academy of Sciences also elected two other Indians as its foreign members. They are Dr. D.S. Kothari former Chairman of University Grants Commission and Dr. K. Venkataraman, both members of the Indian National Science Academy.

New Chairs for Jadavpur Institute

Two professorships for the study of Energy and Environmental Science will be created at the Indian Association for the cultivation of science at Jadavpur. On the occasion of its centenary celebrations, the Centre has sanctioned a recurring grant of

Rs. 1.5 lakhs for these professorships. Dr. D. Basu, Director of the Association, said that the infrastructural facilities were being created. At present there is a professorship for environmental engineering at Jadavpur University but the one to be set up by the Association would cover the scientific aspects along with technology. Experts from abroad would be invited to initiate the professorship. They would do the ground work and other Indian experts would take over after three to six months. Later on the professorships will be given to permanent incumbents or to floating scholars who would stay for a specified period.

During the centenary celebrations, the Association will receive grants amounting to Rs. 50 lakhs from the Union Government and Rs. 11.5 lakhs from the State Government. It is proposed to procure a helium liquefier costing Rs 20 lakhs and an infra-ray spectrometer worth Rs 6 lakhs. Smt. Indira Gandhi, the Prime Minister, will lay the foundation stone of the centenary buildings which will be constructed in July.

Four scientific seminars—two international and two national—will be held as part of the celebrations. Many of the foreign universities and Academies have agreed to participate. The British Council has recently given the Association books and journals worth Rs. 50,000.

Weightage for BNC Varsity students

The BNC University, Kurukshetra, would provide certain concessions to the sportsmen. A weightage of 5 per cent marks for admission to various courses other than D.P.Ed and M.P. Ed. would be available to those sportsmen who are successful in bringing prizes and trophies at the university, inter-university or state level competitions. Similar weightage will be given to students who hold university level certificates of merit of National Service Scheme thus treating them at par with the holders of NCC 'C' certificates. Blind stu-

dents will also be given weightage of 10 per cent marks for admission to various courses of study.

Those students who join part I after passing pre-university (Commerce) and the higher secondary (Commerce) examination will be allowed a weightage of 5 per cent marks for admission purposes.

The university will also reserve 5 per cent seats for science teachers in the various postgraduate courses conducted by it.

Kanpur IIT to collaborate with the East European universities

According to Prof. N. C. Nigam, Dean, Research and Development at the IIT, Kanpur, there will be a closer collaboration with the universities of Belgrade (Yugoslavia) and Budapest (Hungary) in the fields of Science and Technology during coming years. Exchange of scientists and research workers would take place in the implementation of joint research programmes, exchange of technical know-how and participation in seminars and conferences.

Under the two-year agreement signed between India and Yugoslavia, the IIT, Kanpur will also cooperate with the faculty of Electronics of the universities of that country. A senior member of the Department of Electrical Engineering would be shortly visiting Yugoslavia to hold discussions for the initiation of these programmes. Similarly there would be exchange of faculty with the research institute for technical physics at Budapest.

Mysore Jubilee Awards

The Mysore University will be offering jubilee awards in three categories—languages and fine arts, humanities and social sciences and science and technology. The value of each award would be Rs. 3,000. The awards would be given on the basis of original research and for creative work published during the calendar years 1973, 1974 and 1975 making a striking contribution in the fields con-

cerned. Teachers and research scholars working in any university institution or affiliated colleges located in the State of Karnataka will be eligible for these awards.

As part of jubilee celebrations the university will also confer honorary doctorate degrees on seven distinguished persons at a special convocation. They are (1) Smt. M. L. Vasanthakumari, exponent of Sri Purandaradas Keertans; (2) V. Doraiswamy Iyengar, noted Veena Player; (3) Dr. R. K. Narayan, well-known writer in English and an old student of Maharaja's College; (4) Dr. U R. Rao, space scientist; (5) Mr. K. K. Bebbbar, painter; (6) Mr. Adya Rangacharya, Dramatist; and (7) Mr. Ranjala Gopala Shenoy, sculptor.

Former Vice-Chancellors, K.V. Puttappa K.L. Shrimali, Javare Gowda, Manjunath and V.L. D'Souza would also be honoured. A comprehensive history of the Mysore University will be brought out by the Department of History on this occasion.

Madras Science University

Shri Mohanlal Sukhadia, Governor of Tamil Nadu, has approved the proposal for the creation of a university of Science and Technology at Madras. Engineers and technologists were keen to set up the university ever since 1970 as it would ensure greater attention to the development of technical education in the State.

The engineering college in Guindy together with the adjacent technological institutes around it like the Institute of Chemical Technology, Leather Technology, Textile Technology and some of the departments of the A.C. College of Technology are likely to form the nucleus of the proposed university. The exact time of starting of the university will be known when the follow-up measures like legislation relating to it are finalised.

Fellowship instituted in Environment

The Union Government has instituted a fellowship for out-

standing work in environment. It will be named after Pitambar Pant who was the founder Chairman of the National Committee on Environmental Planning and Coordination. The fellowship has been instituted to cover the environmental fields of ecology, disposal of industrial effluence, human settlements and nature conservation. While inaugurating the World Environment day, Mr. Sankar Ghose, Union Minister of State for Planning said that Mr. Pant had done pioneer work for the conservation of environment for fostering a link between development and environment and for arousing an environmental consciousness in the country.

The government is also considering the proposal to enact a unified law which would refer to all problems of environmental pollution instead of having a separate legislation on water and air pollution.

Collegiate education in NE India

A three-day seminar on higher education in north-eastern India was held at Kohima to discuss the problems of higher education of the region. Dr. M. Aram, Director of the Nagaland Peace Centre, in his inaugural address highlighted the record of progress in the field of collegiate education. He commended the progress made in the field of education in this region and was happy to note that while three years ago there were very few colleges and no university in the area. Now there are 250 colleges and a full-fledged university. The seminar was well attended and delegates came from all parts of this region.

Sports Council to help universities

The Bihar State Sports Council has recently approved the organisation of universities sports competitions. This step will encourage the sports activities in the universities and colleges in Bihar. Matches will be so arranged as to enable the teams to know them-

selves before they go to participate in the All-India Universities Tournaments. The Bihar State Sports Council would be holding discussions with the authorities of the Patna University to work out the other details. The tournaments would be organised at Patna this year and the Council would meet all the expenses. The travelling expenses of the participating teams would however be borne by the respective universities. The events selected for the meet are—Table Tennis (boys and girls), Badminton (boys and girls), Cricket (boys and girls), Volleyball, Football and Hockey.

Horticultural Training School

The Indian Council of Agricultural Research would soon set up a big horticultural training school to impart education in preservation, modern methods of horticulture and agricultural management at Chaitthahalli in Coorg district. The need for bringing out collaboration of the scientists and food preservation association in setting up of rural and urban food preservation centres has been felt for quite some time. The food preservation centres should have effective quality control to combat the pest menace. The National Service Schemes of universities would also be utilised for the establishment of rural preservation centres. The proposed school would facilitate such collaborations.

Endowments at Calcutta University

The Calcutta University has the largest record of endowments. Since its inception it has received endowments worth Rs. 1,52,00,000. The annual income of the university from this source is about Rs. 16 lakhs. They comprise professorships, scholarships, studentships, medals and prizes.

The first endowment was by Prasunno Coomar Tagore, the member of the first Senate of the university by a will executed in 1862. Tagore Law Professorship was established. It was the first of its kind in India. The

second endowment known as Premchand Roychand Research Studentship was made by Premchand Roychand of Bombay in 1866. Another large gift was made by Prof. Sibley, a member of the Senate in 1893 for the payment of scholarships to students of an engineering college. Recently the first substantial endowment came from S.K. Lahiri, who made over the copyright of Lahiri's Select Poems to the university in 1908 for the award of a gold medal in memory of his father. Later the proceeds of the book were utilised to institute a fellowship in the History of Bengali Language and Literature. Prof. Dinesh Chandra Sen was the first Fellow. The fellowship was converted into a professorship named after the father of the donor. In 1912 Sir Tarak Nath Palit made a gift of about Rs. 18 lakhs for the advancement of scientific and technical education. Besides donating the property at 92, Upper Circular Road, and at 35, Ballygunge Circular Road, he provided funds for the creation of two professorships one in Chemistry and another in Physics. The first Palit Professor of Chemistry was Acharya P.C. Ray and that for Physics was C.V. Raman.

Large endowments also came from Sir Rashbehari Ghosh and the Khairas. Sir Rashbehari created six professorships in Applied Mathematics, Physics, Chemistry, Botany, Applied Chemistry and Applied Physics. He also provided funds for a few Travelling Fellowships for scholars visiting foreign universities.

The Khairas gave funds for five professorships—one each in Indian Fine Arts (Rani Bageswari Professor), Phonetics, Physics, Chemistry and Agriculture. The first Rani Bageswari Professor was Abanindranath Tagore. The other firsts were Suniti Kumar Chatterji (Indian Linguistics and Phonetics), Meghnad Saha (Physics), J.N. Mukherjee (Chemistry) and Nagendranath Ganguli (Agri-

culture). In 1936 Rai Bahadur V.L. Mitra made an endowment, out of which a women's college of Home Science was set up.

But some of the large gifts came from teachers. The contribution by Harendra Coomer Mukherjee who later became Governor of West Bengal and Chancellor of the university is the largest so far from amongst teachers. Nilratan Dhar and J.P. Nivogi had also made substantial contributions.

The university at present maintains twenty professorships, three readerships and forty lecturerships out of endowments. Besides there are more than 350 small endowments for the award of medals, prizes and scholarships.

(Courtesy : *The Statesman*)

Nehru Awards

Prof. C.V. Subramaniam, Director of the Centre of Advanced Study in Botany and Head of Botany Department, Madras University and Prof. S. Krishnaswamy, Head of the Department of Biological Sciences, Madurai University, are the recipients of the joint Jawaharlal Nehru fellowship this year. Their study would be on the ecological approaches to environmental problems in India. It will identify, survey, catalogue and evaluate ecological problems and critically examine these from biological point of view. An attempt will also be made to identify organisms, which can be useful indicators of air, soil and water pollution. This may help monitor environmental pollution without recourse to sophisticated techniques.

In addition to the joint study Prof. Subramaniam will prepare a monograph on the hyphomycetes and Professor Krishnaswamy will write a book on copepods.

The award carries a monthly stipend of Rs. 3,000 and an annual contingent grant of Rs. 10,000 for secretarial assistance, travel and purchase of books.

Saurashtra plans for better education

The Saurashtra University has eliminated malpractices in the conduct of examinations. Plans have been worked out for raising the academic standards. These proposals seek to give a new dimension to the academic atmosphere by laying emphasis on imparting regular and intensive training to the students on one hand and offering adequate facilities for higher and specialised studies to deserving students. With the introduction of strict checking and timely and proper evaluation the percentage of success has come down considerably in the university examinations.

Mr. H.S. Sanghvi, Vice-Chancellor of the University, has circulated detailed guidelines to the Principals of the affiliated colleges on imparting a better type of education to the students. They have been asked to shed their conservative and traditional approach and be dynamic in fulfilling the new responsibilities in the context of the changed situation. He appealed to them to consult the faculty members as well as students on the implementation of the new plan. A synopsis of the syllabus is to be prepared and provided to the students well in advance. The classes are to be conducted regularly. Tutorials and seminars are to be arranged properly. A list of reference books is to be supplied to the students. The regular home assignments to the students constitute the other component of the plan. Study circles would be organised under the charge of the senior professors. The faculty should also be encouraged to organise their own study circles and help the junior colleagues to undertake research activities through the help of such circles.

The university has decided to improve the postgraduate teaching as well. The university will also start a degree programme in library science. A monthly bulletin

giving news about the activities of the university would be published from this month regularly.

NTC helps students

The National Textile Corporation has introduced 'earn while you learn' scheme for the needy college students from this academic year. This scheme is expected to inculcate among young students entrepreneurship, self-confidence and a sense of involvement and participation in the economic development of the country. This will enable them to participate in the social objectives of NTC.

Selected students will be offered part-time employment and will undergo training in one of the establishments of the Corporation for a period of fifteen days. During the training period, they will be paid Rupees two per hour and they will have to put in a minimum of two hours work daily. After completion of the training period, they will be offered part-time employment during which period they would be paid Rupees five per hour.

Under the second scheme, the students will be permitted to take delivery of NTC fabrics, depending upon the cash deposit guarantee from a particular retail outlet for sale on door-to-door basis in different localities. For the sale effected, the students will get a commission ranging from 8 to 10 per cent. A group of students may also be allowed to open sale counters within the premises of a university, college or hostel.

Osmania introduces entrance tests at the undergraduate level

The Osmania University will hold entrance tests from this year at the undergraduate level. This decision has been taken as part of the general programme of the university to reorganise and improve educational standards apart

from future growth keeping pace with available facilities.

The entrance test for the undergraduate courses is necessary to minimise wastage which has been as high as 50 to 70 per cent. The experience of the university with the postgraduate studies, engineering and technical courses also reveal that where students are selected on the basis of entrance tests, the wastage is reduced to 5 to 7 per cent. But the main advantage of this decision is the regulation of admission into the 89 different colleges in the jurisdiction of the university. Earlier each college used to have a different date of admission with the result that admissions, in some cases, were kept open as late as November/December of the academic year. This resulted in reducing the academic year and lowering of the standards.

Already there are entrance tests for different courses to postgraduate and technical courses. Entrance tests for undergraduate courses are only an extension of this principle. Through these tests the aptitude of the students for higher education would be evaluated and this will eliminate the hardships caused to candidates by running from college to college seeking admissions. The tests also would have nothing to do with the number of seats available and the number of candidates applying for admissions. The university does not want to deny any admission to any person. But it expects that a student seeking admission to BA, BCom and BSc should be capable enough and should have proper performance standards and aptitude for higher studies.

UGC Summer Institute in English concludes

The five-week Institute of English sponsored by the University Grants Commission was held at the Horse-shoe building, with Dr. K. Subrahmanian as Course Director, concluded recently at a valedictory function presided over by Mr. S. L.

Soni, Director of Education, Arunachal Pradesh. Mr. N. K. Rustomji, Chief Secretary of the Government of Meghalaya, the chief guest, distributed the certificates to the 32 participants. In his speech, the Chief Secretary stressed the importance of English and said that the language should not be considered only as the language of the English speaking people; because, he said it is an international language and it should be used as effectively as possible by Indians. Mr. Rustomji was of the opinion that Grammar, Phonetics, and Methodology must also lead to a deep appreciation of literature. He commended the Institute for bringing together participants from different parts of the region.

Earlier Prof. K. Subrahmanian and Prof. D. Thakur gave short reports of how the Institute was conducted.

7-point grading system for Gauhati University

The Academic Council of the Gauhati University has decided to introduce a seven point 'Grading' system in place of 'marking' at the Post-graduate level from the academic session 1976-77.

USSR Science Academy honours Prime Minister

Smt. Indira Gandhi, Prime Minister of India, was awarded an honorary doctorate of science by the Academy of Sciences of the Soviet Union at the colourful function held in the Hall of Columns in Moscow, during her recent visit to Russia.

Mr. V. A. Kotelnikov, Vice-President of the Academy, in his opening remarks said that the Soviet people highly valued Mrs. Gandhi's services in strengthening India's independence and development of national economy, science and culture, friendship and cooperation between the

people of India and the Soviet Union. Mrs. Gandhi has won respect throughout the world as an outstanding political leader, invariably and consistently coming out for peace and cooperation among the peoples for social progress.

The Prime Minister thanked the Academy and said she regarded this not as an honour to her alone but as a token of Soviet people's regard for the people of India.

Compensatory teaching scheme of Jabalpur

The University of Jabalpur has decided to introduce the compensatory teaching scheme from the next academic session for the students belonging to the scheduled castes and scheduled tribes. The scheme has been forwarded to the University Grants Commission for financial assistance.

Bihar Inter-University Board starts functioning

The Inter-University Board in Bihar will coordinate the academic activities of the universities. As a first step it has been decided to stop the internal evaluation of answer books by universities. A consolidated list of examiners on the basis of panels submitted by universities would now be entrusted with the job of evaluation. To ensure necessary sanctity and secrecy in various university examinations it has been decided to send the answer books of one university to the other and the Board would supervise this job.

A common syllabus for all the universities would also be prepared after discussions with the university bodies. Serious endeavour would be made to have common statutes, rules and regulations for all the universities in the State.

The officials of the Board would be visiting the universities regularly to discuss the matter of mutual interest.

The Board in its first meeting held recently, also considered the

scheme of Patna University which related to cross-course system according to which arts students could take up science subjects in their combination and the science students could read arts subjects along with some of the science papers. After some discussions the scheme has been referred to other universities for their comments. Experience of other institutions would also be obtained. With a view to avoid duplication of work in the postgraduate departments, the Board is suggesting that coordination be effected between the various postgraduate departments of the universities. The Board would also look to the timely submission of annual reports of the universities to the government.

Open University concepts adopted at Madurai

The Madurai University is

planning to introduce the concept of "OPEN UNIVERSITY" through the Institute of Correspondence Course and Continuing Education. Under this programme of non-formal education, a person above the age of 25 would have the opportunity of continuing his education leading to a degree. There is no prescribed minimum qualification for admission into the course and this new system will come into effect from the academic year 1976-77. Personal experience gained by the Vice-Chancellor, Prof. S.V. Chitti Babu during his visit to the U.K. has helped the University in adopting some of the concepts and operational techniques of open University of Great Britain.

In the first instance, B.A. degree course will be introduced in an integrated pattern taking a

minimum of 5 years. It consists of a "Foundation" course and a "Degree" course. The Foundation course will be of 2 years duration and is aimed at attaining the level of P.U.C. The courses as well as the examinations will be different from the existing PUC or B.A. For additional instructions, local study centres, radio lessons, summer classes etc., would be employed.

Encouraged by the success of the various correspondence courses, the Madurai University has decided to introduce the M.Com., M. A. (Tamil), M. A. (History) and B.G.L. courses in the Institute of Correspondence Course and Continuing Education.

ADDITIONS TO AIU LIBRARY

June 1976

- Adelman, Clifford. *Generations: A collage on youthcult.* Middlesex, Penguin, 1974. 342p.
- Anderson, Scarvia B. and others. *Encyclopedia of educational evaluation: Concepts and techniques for evaluating education and training programs.* San Francisco, Jossey-Bass, 1976. xxiii, 515p.
- Arblaster, Anthony. *Academic freedom.* Middlesex, Penguin, 1974. 184p.
- Australian Vice-Chancellors' Committee, Canberra. *Grades of pass for first degree subjects.* Canberra, Author, 1975. 10p.
- . *Outside work.* Canberra, Author, 1975. 21p.
- . *Selection and appointment procedures.* Canberra, Author, 1975. 15p.
- Balderston, Frederick L. *Managing today's university.* San Francisco, Jossey-Bass, 1975. xvi, 307p.
- Carter, Michael. *Into work.* Middlesex, Penguin, 1966. 240p.
- Chickering, Arthur W. *Commuting versus resident students: Overcoming the educational inequities of living off campus.* San Francisco, Jossey-Bass, 1974. xv, 150p.
- Cohen, Harold L. and Filipczak, James. *New learning environment: A case for learning.* San Francisco, Jossey-Bass, 1971. xxvi, 192p.
- DeCoster, David A. and Nable, Phyllis, Ed. *Student development and education in college residence halls.* Washington, American College Personnel Association [c 1974] x, 278p.
- Gabor, Dennis. *Innovations: Scientific, technological, and social.* New York, Oxford University Press, 1970. vi, 113p.
- Head, David, ed. *Freeway to learning.* Middlesex, Penguin, 1974. 165p.
- Heist, Paul, ed. *Creative college student: An unmet challenge.* San Francisco, Jossey-Bass, 1970. xviii, 253p.
- Herman, Melvin and Sadofsky, Stanley. *Youth-work programs: Problems of planning and operation.* New York, New York University Press [c 1966] xi, 208p.
- Huebener, Theodore. *Schools of West Germany.* New York, New York University Press, 1962. xii, 181p.
- Irwin, Vincent L. and King, Sean. *Test your chemistry.* Middlesex, Penguin, 1969. 63p.
- Katz, Joseph and others. *No time for youth: Growth and constraint in college students.* San Francisco, Jossey-Bass, 1969. xx, 463p.
- King, Sean and Irwin, Vincent L. *Test your Physics.* Middlesex, Penguin, 1969. 63p.
- Kogan, Maurice. *Politics of education.* Middlesex, Penguin, 1974. 208p.
- Kriehbaum, Hillier and Rawson, Hugh. *Investment in knowledge.* New York, New York University Press, 1969. vii, 334p.
- Lipham, James M. and Hoeh, James A. *Principalship: Foundations and functions.* New York, Harper & Row, 1974. 372p.
- Maslow, Abraham H. *Farther reaches of human nature.* Middlesex, Penguin, 1971. 440p.
- Meyer, Peter. *Awarding college credit for non-college learning.* San Francisco, Jossey-Bass, 1975. xxvi, 195p.
- Milton, Ohmer. *Alternatives to the traditional: How Professors teach and how students learn?* San Francisco, Jossey-Bass, 1973. xiv, 156p.
- Patterson, Franklin. *Colleges in consort: Institutional cooperation through consortia.* San Francisco, Jossey-Bass, 1974. xvi, 182p.
- Rowe, Michael. *Test your biology.* Middlesex, Penguin, 1969. 63p.
- Schaw, Louis, C. *Bonds of Work: Work in mind, time and tradition.* San Francisco, Jossey-Bass, 1958. xviii, 300p.
- Searle, John. *Campus war: A sympathetic look at the university in agony.* Middlesex, Penguin, 1972. 219p.
- Voss, John and Ward, Paul L., ed. *Confrontation and learned societies.* New York, New York University Press, 1970. xv, 126p.

CLASSIFIED ADVERTISEMENTS

SAMBALPUR UNIVERSITY JYOTI VIHAR : BURLA

Advertisement No. 23054/TDS

Dated the 16-6-1976

Applications in the prescribed form with attested copies of marksheet and certificates of all examinations passed are invited for two posts of Lecturer in Mechanical Engineering in the University College of Engineering, Burla.

Essential Qualification

First Class Bachelor's Degree or Master's Degree in Mechanical Engineering with specialisation in

(a) Machine Design and Analysis (One post.)

(b) Production/Industrial Engineering (One post).

Desirable Qualification:

- (i) Research experience and capacity to carry out independent research.
- (ii) Teaching experience of one year in a University standard institution.
- (iii) Corporate membership of recognised professional institution.
- (iv) Doctorate Degree.

Scale of Pay:

Rs. 400-40-800-50-950 (The scale is likely to be revised).

The post carries C.P.F. benefits and dearness allowance as would be sanctioned by the University from time to time.

Age of retirement: Sixty years

Seven copies of the application form will be supplied from the University office to each candidate in person on cash payment of Rs. 10/- (Rupees ten only). Candidates intending to receive form by post are required to send (a) Crossed Indian Postal Order of Rs. 10/- payable to the Finance Officer, Sambalpur University, Sambalpur (b) Self addressed envelope (23 x 10 cm) with postage stamps worth Rs. 2.85 affixed to it with the words "Application form for Teaching Posts in the Sambalpur University" superscribed. Money Order, Cheque or Bank Draft will not be entertained.

The last date of receipt of application by the undersigned is 12.7.1976.

Candidates will be required to appear before a Selection Committee appointed by the University at their own expenses. Selected Candidates will be required to join the post within one month from the date of issue of appointment order.

Issue of this advertisement does not make it binding on the part of the University to make appointment.

All communications should be addressed to the undersigned by designation and not by name. No interim reply to any query shall be given.

\$d/-

G. P. GURU
REGISTRAR

INDIAN SCHOOL OF MINES DHANBAD-826004

Advertisement No. 420026/76

Dated June 11, 1976

Indian School of Mines, a deemed University under the University Grants Commission Act, 1956, wishes to recruit:

An Assistant Registrar (Accounts and Audit)

In the revised Pay Scale of Rs. 700-1300/- plus allowances admissible under rules. Total emoluments at the minimum of the scale will work out to Rs. 986.50.

Job Description :

Responsibility for internal audit of all receipts and payments, management of funds, ensuring proper record maintenance, and overall responsibility for all financial matters of the School.

Qualifications :

- (i) Post-graduate degree in Commerce (with at least 60 per cent marks) (Essential).
- (ii) Preference will be given to qualified Chartered Accountants/ Cost and Works Accounts.
- (iii) Knowledge of Hindi (Desirable).
- (iv) Experience for at least five years (including at least two years in a supervisory capacity) in maintenance and management of accounts in a large educational/research institution or industrial undertaking (Essential).

General :

Age not to exceed 35 years. Age and qualifications relaxable in case of specially experienced candidates. Applications on plain paper giving the following details should reach the Registrar, Indian School of Mines, Dhanbad-826004, by 15th July, 1976.

- 1.1 Name in full and address (in capital letters).
- 1.2 Date of birth.
- 2.1 Nationality.
- 2.2 State if Scheduled Caste/Tribe. In such cases, certificates from appropriate authorities to be attached.
- 3.1 Particulars of academic and technical qualifications.
- 3.2 Details of experience/position held, nature of duties, scale of pay (and last pay drawn), etc.
- 4.1 Minimum salary acceptable.
- 4.2 Minimum notice required.
5. Additional information, if any.

Applications shall be accompanied by a Money Order receipt for Rs.8/- (Rs.2/- for Scheduled Caste/Tribe candidates) showing that the amount has been sent to the Registrar, Indian School of Mines as application Fee.

Persons in service should apply through proper channel. An advance copy may be sent but the original application should invariably reach this office within 15 days of the last date prescribed above for receipt of applications.

Other things being equal, preference will be given to scheduled Caste/Tribe candidates.

Candidates called for interview will be paid single First class railway fare each way by the shortest route for appearing at the interview. Persons selected for appointment will have to join immediately.

The School reserves the right to consider cases of 'Contact Candidates' even though they have not formally applied for the post.

M.S. RAMAMURTHY
REGISTRAR

UNIVERSITY OF DELHI
Advt. No. Estab. IV/33/76

Applications on the prescribed form are invited for the following posts:

S.No.	Department	Designation
1.	Buddhist Studies	One Professor
2.	Chinese & Japanese Studies	i. One Professor of Chinese Language and Literature. ii. One Reader in Sino-Korean Studies. iii. Two Readers in Japanese Studies. iv. One Reader v. Two Research Associates in Chinese Studies.
3.	Faculty of Law Campus Law Centre	i. Four Readers (Two Temp.) ii. One Lecturer
4.	Philosophy	iii. Four Part-time Lecturers i. Two Readers (One temp. upto 30.6.77) ii. One Reader with specialization in Philosophy of Science, Philosophical Methodology & Techniques
5.	Sociology	i. One Lecturer (Temp.) ii. Two Research Associates
6.	Mathematics	One Reader
7.	Mathematical Statistics	One Reader
8.	Operational Research	Two Lecturers (One Temp.)
9.	Modern Indian Languages	i. One Reader in Punjabi (Temp. upto 2.2.1978) ii. One Lecturer in Kannada iii. One Lecturer in Marathi iv. Two Lecturers in Bengali. Two Lecturers (Temp.)
10.	History	i. One Professor
11.	Chemistry	ii. One Research Associate iii. Two Junior Lab Assistants (One reserved for Scheduled Castes) iv. Three Lab Attendants (Temp. but likely to continue) - One each reserved for Scheduled Castes & Ex-servicemen
12.	Physics & Astro-Physics	i. One Lecturer ii. One Sr. Instrument Mechanic iii. One Lab Attendant (Temp.)
13.	Faculty of Management Studies	One Placement Officer
14.	Botany	i. One Technician ii. Two Technical Assistants (One reserved for Scheduled Castes)
15.	Anthropology	One Jr. Laboratory Assistant (Temp. but likely to continue)
16.	Computer Centre	One Professional Assistant
17.	Library Science	One Professional Assistant
18.	University Library	i. One Technician for Reprographic Unit. ii. Lib Assistants.
19.	Engineers' Office	Four Jr. Engineers (Civil) One each reserved for Scheduled Castes & Scheduled Tribes)
20.	University Garden	One Garden Overseer
21.	Modern European Languages	One Lecturer in Spanish
22.	Central Office	i. Assistant Registrars Administrative Officers Assistant Controller of Examinations ii. Assistants

NOTE: The posts at Sr. Nos. 2 (i), (ii), (iii) & (iv) for Chinese and Japanese Studies have been sanctioned for the duration of Fifth Five-Year Plan

The Scales of Pay of the Posts are:

1. Professor	Rs. 1500-60-1800-100-2000-125 2-2500
2. Reader	Rs. 1200-50-1300-60-1900
3. Lecturer	Rs. 700-40-1100-50-1600
4. Placement Officer	Rs. 1100-50-1600
5. Research Associate/ Assistant Registrar/ Administrative Officer/ Assistant Controller of Examinations.	Rs. 700-40-900-EB-40-1100-50-1300
6. Technician	Rs. 550-25-750-EB-30-900
7. Junior Engineer (Civil)/ Garden Overseer/Senior Instrument Mechanic/ Technical Assistant	Rs. 425-15-500-EB-15-560-20-700
8. Library Assistant/Assistant	Rs. 330-10-380-EB-12-500-EB-15-560
9. Junior Lab. Assistant	Rs. 260-8-300-EB-8-340-10-380-EB-10-430
10. Professional Assistant	Rs. 250-15-400 (Likely to be revised)
11. Lab. Attendant	Rs. 210-4-250-EB-5-270
12. Part-time Lecturer	Rs. 500/- P.M. fixed

All posts carry D.A., C.C.A. and H.R.A. as admissible under the rules in force from time to time.

1. Essential Qualifications for:

Professorships:

A Scholar of eminence.
Independent published work of high standard and experience of teaching Post-graduate classes and guiding research for a considerable period desirable.

2. Readerships:

Good academic record with first or high second class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work. Independent published work (in addition to the published work mentioned above) with at least 5 years' teaching experience in Honours/Post-graduate classes essential.

3. Lectureships (Other than Law):

Essential: Consistently good academic record with a First or high Second class (B+) Master's Degree or an equivalent Degree of a foreign University in the subject concerned.
Desirable (in order of preference):

- A Doctor's Degree or Evidence of research work of equivalent standard in the subject concerned.
- Teaching experience of Degree Post-graduate classes.

Provided that if a teacher is not a Ph.D. at the time of his/her appointment and does not qualify himself/herself for the award of a Ph.D. Degree from a recognised University in the subject which is being taught by him/her within the period of five years from the date of his/her appointment or does not give evidence of research work of equal standard within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of five years till such time he/she fulfils the above mentioned requirements.

4.(i) Lectureships in Law and Research Associates (Other than Sociology):

Good academic record with a first or high second class Master's Degree or an equivalent Degree of a foreign University in the subject concerned.

(ii) Research Associates in Sociology:

Consistently good academic record with a first or high second class (B+) Master's Degree in Sociology or an equivalent degree of a foreign University in the subject concerned and a Doctor's degree in Sociology or evidence of research work of equivalent standard in the subject concerned.

5. Part-time Lectureships in Law:

Good academic record with a first or high second class Bachelor's or Master's Degree in Law, practice at the Bar for at least 5 years of which at least 3 years should have been in the Trial Courts. Previous teaching experience desirable but not essential.

6. Senior Instrument Mechanic (Physics): Certificate in special Trades and at least five years experience in a recognised Institute.

7. Laboratory Attendant (Physics & Chemistry): Should have passed the Matriculation or an equivalent Examination with Science subjects.

8. Junior Engineer (Civil): Must hold Diploma in Civil Engineering of a recognised Institute with

at least 2 or 3 years' experience as a Junior Engineer/Overseer in an Institute of repute.

9. **Garden Overseer:**
B.Sc. Agriculture/Horticulture.
10. **Placement Officer:**
Master's Degree in Business Management, or in any discipline of Social Sciences such as Sociology, Economics, Commerce, Psychology, Social Work, etc. with familiarity in Business Management and/or Personnel Management.
11. **Asstt. Registrars (Admn. Officers Asstt. Controllers of Examinations):**
A Second Class Master's Degree with 10 years' Office experience of which at least 5 years' should be in a supervisory capacity.
12. **Technician (Botany):**
M.Sc. with Physics as the main subject, adequate knowledge of Electronics, especially with reference to Electron Microscope.
13. **Technician for Reprographic Unit:**
 - i. B.A./B.Sc./B.Com.
 - ii. Diploma in printing and technology from a recognised Institute.
 - iii. Working experience of at least five years in reprography (Micro-Filming, Microfiche, and photocopying techniques) offset printing, plate making and camera process work
14. **Professional Assistant:**
 - i. First or Second Class B.A. B.Sc., B.Com or First or Second Class Master's Degree, and
 - ii. First or Second Class B.Lib. Sc or First or Second Class Post-graduate Diploma in Lib. Sc
15. **Assistants (for Central Office):**
Graduation. Will be required to take and qualify in prescribed Test in General English.
16. **Library Assistants:**
B.A./B.Sc./B.Com & Certificate in Library Science. The candidates will be required to take and qualify in the prescribed test in General English. Note: Those candidates who had applied in response to the earlier advertisement and who possess the essential qualifications now mentioned need not apply again. Those who do not possess any of the revised qualifications, are not eligible to be considered.
17. **Jr. Lab. Assistants (Chemistry & Anthropology):**
Matric or equivalent examination with Science subjects.
18. **Technical Assistants (Botany):**
Graduation in Science. Experience of working in a Botanical Institute or Scientific Laboratory.
- II. **Special/Desirable Qualifications for:**
 1. **Professorship in Buddhist Studies:**
Should be proficient in Sanskrit and Pali and must have specialised in one or more of the following subjects:
 - i. Buddhist Philosophy with all its divisions and Schools;
 - ii. Buddhist History and Culture;

iii. Buddhist Literature, Sanskrit and Pali.
Knowledge of Tibetan and/or Chinese desirable.

2. **Professorship in Chinese Language and literature:**
High proficiency in reading modern and classical Chinese. Published work in Chinese.
3. **Readership in Sino-Korean Studies:**
Proficiency in both Chinese and Korean Languages.
4. **Readership in Japanese Studies:**
For First Post: Proficiency in Japanese language and experience in consulting Japanese source materials in research
For Second Post: High proficiency in Japanese language
5. **Readership in Chinese Studies:**
Proficiency in Chinese language Specialization in Comparative studies of India and China. Research papers on Chinese society based on primary source materials.
6. **Research Associates in Chinese:**
Proficiency in Chinese language Experience in research.
7. **Readership in Philosophy (For temporary post):**
Specialization in Phenomenology and Existentialism and/or Philosophy of Religion.
8. **Lectureship in Sociology:**
Specialization in research methods and statistical and survey techniques
9. **Research Associates in Sociology:**
Specialization in one of the following areas:
Social demography, sociology of education, sociology of organization and ethnography of South-West Asia.
10. **Readership in Mathematics:**
Specialization in Abstract Algebra
11. **Readership in Mathematical Statistics:**
Specialization in one or more of the following:
(i) Statistical Inference (ii) Design of Experiments; (iii) Sample Survey (iv) Renewal Processes
12. **Lectureship in Operational Research (For permanent post):**
Specialization in one of the following topics:
(a) Inventory (b) Marketing (c) Computer Programming.
13. **Lectureships in Marathi and Kannada:**
 - i. Knowledge of modern Indian language other than Marathi and Kannada respectively.
 - ii. Ability to give courses in the M. Litt Degree programme in Comparative Indian Literature.
14. **Readership in Punjabi:**
Knowledge of some Indian languages other than Punjabi and of Western literary theory and criticism.
15. **Lectureships in History**
Specialization in:
i. Modern Indian History, (ii) Medieval Indian History.
16. **Jr. Lab. Assistants (Chemistry):**
 - i. Should have some experience in Stores;
 - ii. Experience in College/University/ Science Laboratory will be preferred.

17. **Lab. Attendants (Chemistry):**
Experience in College/University/ Science Laboratory will be preferred.
18. **Sr. Instrument Mechanic:**
Experience in fabrication and repair of Electrical instruments normally used in Science Laboratories Capability to work on Workshop Machines.
19. **Lab. Attendant (Physics):**
Should have worked in a Laboratory.
20. **Technician (Botany)**
Knowledge of maintenance of optical Research Microscopes, Refrigeration Units and other Laboratory equipment and apparatus used in botanical Laboratories.
21. **Technical Assistants (Botany):**
Should have working knowledge of repair of Electronic equipments, Air conditioners, Refrigerators, Centrifuges, Microscopes and other instruments used in Science Laboratories

OR

- Working knowledge of repair of microscopes, and other instruments used in biological laboratories, preparation of permanent microscopic slides of plant specimens and maintenance of stores
22. **Jr. Lab. Assistant (Anthropology):**
Five years experience in Anthropology Laboratory and Field experience
 23. **Lectureship in Spanish:**
Evidence of published work advanced studies or experience of teaching degree classes for not less than two years' and ability to speak correct Spanish.
 24. **Professional Assistant (Computer Centre):**
 - i. Knowledge of one of the computer languages with some experience of programming;
 - ii. Experience of handling magnetic tapes, magnetic disks and other computer input-output media as also experience in different library operations.
 25. **Library Assistants:**
 - i. Knowledge of Hindi and some other Modern Indian Languages.
 - ii. Knowledge of typing with minimum speed of 35 w.p.m
 26. **Garden Overseer:**
Experience of supervisory work in an organised garden.
 27. **Placement Officer:**
A person having industrial background or the knowledge of working of private and/or public undertakings or educational institutions with special reference to placement and training work will be given preference.
- The prescribed application form can be had from the Information Office of

the University either personally or by sending a self addressed envelope (5x11") with postage stamps worth Rs. 2.55.

Selected candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Application (separate for each post) accompanied by attested copies of Degrees, other certificates, published research articles, etc. should reach the undersigned not later than 24th July, 1976.

Applications for the posts of Professional Assistants and Library Assistants should be sent to the Librarian, Delhi University Library, Delhi-110007, not later than 24th July, 1976.

Note: 1. It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation in any of the qualifications may be made in exceptional cases, in respect of all posts on the recommendations of the Selection Committee.

2. Canvassing in any form by or on behalf of the candidates will disqualify.
3. Candidates from outside Delhi for the Teaching posts, called for interview will be paid contribution towards travel expenses equivalent to 1½ single second Class Rail fare.
4. Certain percentage of posts in the cadres of Non-teaching posts are reserved for Scheduled Castes, Scheduled Tribes and Ex-servicemen.
5. Those who had applied in response to the earlier advertisement for the posts of Readers, Lecturers and Part-time Lecturers in Law for Campus Law Centre, need not apply again, but in case they have any additional information to supply they may do so.
6. Initial appointment to the posts of Research Associates will be for a tenure period of three years extendable by another two years only. In no case the tenure will extend beyond 5 years in all.

Sd/-

Delhi-7
23.6.1976 REGISTRAR
University of Delhi

SHIVAJI UNIVERSITY, KOLHAPUR Advertisement

Applications are invited for the following Posts:-

A Professor each in Physics (Material Science), Economics (Econometrics/Mathematical Economics) and History (Maratha History).

If a suitable candidate for the Professor's post is not available a Reader will be appointed against the post of a Professor.

A Reader in English

Two Lecturers each in Mathematics (Statistics & Pure Mathematics), Physics (Solid State Physics or Material Science and Electronics) and one Lecturer in Bio-Chemistry in Zoology Department.

Pay scales:

Professor: Rs. 1100-50-1300-60-1600.

Reader: Rs. 700-50-1250.

Lecturer: Rs. 400-40-800-50-950.

Qualifications and Experience:

(1) Professor:

First or Second Class Master's Degree and Doctorate Degree in the subject of a Statutory Indian or Foreign University of repute.

Teaching Post-Graduate classes for about ten years and guiding successfully some Ph.D. Students.

Post Doctoral Research work of merit done in a recognised Research Institute or in the University Department will be considered equivalent to Post-Graduate teaching.

Published research work of merit will receive due consideration.

(2) Reader:

(a) A Doctorate Degree of any recognised University, Indian or Foreign, with at least second class either at Bachelor's or Master's Degree and published independent research work.

Post-Doctoral Research Work of merit done in a recognised Research Institute or in the University Department will be considered equivalent to Post-Graduate teaching.

(b) Seven years' experience of teaching Post-Graduate Classes.

(3) Lecturer:

(a) A First or Second Class Master's Degree

Or

A Doctorate Degree with at least Second Class Bachelor's Degree.

Or

Any other equivalent Degree or Degrees of an Indian or Foreign University And

(b) Five years' experience of teaching Graduate Classes at the Special or Principal level or at Post-Graduate level.

Ph.D. in Bio-Chemistry with M.Sc. Second class will be considered as teaching experience.

(c) Preference will be given to candidates belonging to Scheduled Castes, Scheduled Tribes, Nomadic Tribes and O.B.C.

Prescribed application forms (seven copies) can be had from the University Office. Desiring candidates are requested to send Indian Postal Order of Rs. 3.50 along with self addressed envelope with a postage of 0.70 ps.

Seven copies of applications along with necessary enclosures should reach the Registrar, Shivaji University, Vidyanagar, Kolhapur-416004, on or before 30th July, 1976.

Kolhapur,
Dt. 21.6.76

Usha Ithape
REGISTRAR

UNIVERSITY OF GAUHATI GAUHATI-781014

Advertisement No. 5 of 1976

CORRIGENDUM

The last date for receiving applications for the posts of Professor of Botany, Professor of Political Science, Professor of Philosophy etc. advertised

in our advertisement No. 5 of 1976 is extended till 15th July, 1976.

K. C. Bhattacharyya
REGISTRAR

SOUTH GUJARAT UNIVERSITY

Applications in the prescribed forms (in eight copies) are invited for the following posts in the Post Graduate Departments of the University.

Reader: One each in the Department of English and the Department of Education.

Lecturer: In the Department of English.
Pay Scales:

(1) Reader: Rs. 1200-50-1300-60-1600
Assessment-60-1900.

(2) Lecturer: Rs. 700-40-1100-50-1300
Assessment-50-1600.

In addition to pay, the teachers of the University Departments are entitled to draw dearness allowance, house rent allowance and other benefits like Contributory Provident fund and Gratuity as may be decided from time to time.

General:

The candidates with the knowledge of Gujarati will be preferred, those without such knowledge, if appointed, will be required to acquire working knowledge of Gujarati within the period of probation which shall be of two years. Selected candidates will be expected to join immediately. Information about the qualifications prescribed for each post and forms prescribed for application can be had from the undersigned on payment of Re. 1/- in cash or by Postal Order and with self-addressed envelope of 23 cm x 13 cm size duly stamped with Rs. 0.50 Ps. The last date for receipt of applications is 20-7-1976.

Surat

Dt. 17-6-1976

G.A. Desai

REGISTRAR

UNIVERSITY OF JAMMU NOTICE

Applications on prescribed forms are invited for the following posts so as to reach the undersigned on or before July 27, 1976.

1 Professor in Zoology : (one post)
Rs. 1500-1900 (Revised)

2 Reader in Pol. Science : (one post)
Rs. 1100-1600 (Revised)

3 Lecturers: (i) Ancient Indian History (one post in leave arrangement)
(ii) Organic Chemistry & Physical Chemistry (one each in leave arrangement)

(iii) English : (one)

Pay scale: Rs. 700-1300 (Revised)

plus D.A. as admissible under rules.

For full details and prescribed application form, please apply by sending a self addressed envelope of 25 cms. x 10 cms size bearing stamps worth Rs. 1.50 paise along with a crossed postal order for Re. 1/- drawn in favour of the Registrar, University of Jammu, Canal Road, Jammu (Tawi)-180001, Jammu & Kashmir State, cashable at Jammu Post Office.

Sd/-

I/C REGISTRAR

**INDIAN INSTITUTE OF
TECHNOLOGY, KANPUR**
IIT POST OFFICE, KANPUR
Advertisement No. 22/76

Applications are invited for eight posts of Assistant Professors/Lecturers, in the scale of Rs. 1200-50-1300-60-1900 and Rs. 700-40-1100-50-1600 respectively, in the Department of Mechanical Engineering of this Institute. One post of Lecturer is reserved for Scheduled Caste/Scheduled Tribe candidates. In the event of non-availability of SC/ST candidate, the reserved post would be treated as unreserved. The programme is seeking individuals with ability and aptitude for teaching, research and development in any of the following six areas of interest.

1. Solid Mechanics and related areas
2. Fluid Mechanics and related areas
3. Thermal Science
4. Design
5. Automatic Controls
6. Manufacturing Science

Qualifications: For the post of Assistant Professor:

(a) Essential:

- i. A consistently good academic record in specified (or related) areas of specialization.
- ii. Doctorate degree with at least 5 years experience in teaching, research/industry with a satisfactory record and a record of independent research/developmental activity beyond thesis work.

Or

M. Tech. (or equivalent) degree with at least ten years of practical experience in a position of responsibility in a public or private undertaking with a record of significant and meaningful development project activity.

(b) Desirable:

Publications in referred Journals, Patents.

Qualifications: For the post of Lecturer:

(a) Essential:

- i. A consistently good academic record in specified (or related) areas of specialization.
- ii. Doctorate Degree.

Or

M.Tech. (or equivalent) degrees with at least four years of practical experience in a public or private undertaking with a record of personal accomplishments in developmental/Project activity.

(b) Desirable:

Some teaching/research/industrial experience with a publication record and a strong interest in developing under-graduate/postgraduate programmes including laboratory and curriculum development and also research and development activities of relevance to national needs.

In exceptionally meritorious cases, the selection committee may relax the required number of years of experience for all posts.

Posts are permanent and carry retirement benefits in the form of CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme. The age of retirement is 60 years.

During the first year the appointment will be on probation. Besides pay, posts carry allowances according to institute rules, which at present correspond to those admissible to Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare for travel inside India, from the place of duty to Kanpur and back by the shortest route.

The Indian Institute of Technology, Kanpur has well equipped laboratories and central facilities. The Computer Centre has I.B.M. 7044, 1401 and 1800 and PDP-1 systems as also ECIL TDC-316 and a group of experienced programmers. The following central facilities are available: 2 Mv Van de Graaff accelerator, 4096 multi channel analyser and other radiation detection equipment, Liquid nitrogen and liquid helium plants, NMR, EPR, Mass Spectrometer, X-ray plant, UV and IR Spectrometers, glass blowing shop, crystal growth facility, central instrumentation laboratory, precision machine shop, electron microscope besides a large workshop for the fabrication of specialised research apparatus. The Institute has a well stocked library with more than 1,50,000 volumes and 1,300 periodicals. The campus facilities include primary and higher secondary schools, a health centre and a shopping centre.

Applications should be made on the prescribed forms obtainable free of charge from the Registrar of the Institute by sending a self addressed unstamped envelope of 25 x 10 cms. size. Applications should be accompanied by a postal order for Rs. 7.50 (Rs. 1.87 for SC/ST candidates).

All applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016, U.P. by August 7, 1976.

Candidates selected will be expected to join the Department at the earliest.

**INDIAN INSTITUTE OF
TECHNOLOGY, BOMBAY**
P.O.: IIT POWAI,
BOMBAY-400076

Advertisement No. 841/76

Applications on plain paper are invited from the Citizens of India for the following posts in the Computer Centre with a view to promoting computer activities, on or before 15.7.1976 by the Registrar, Indian Institute of Technology, Powai, Bombay-400076. The Computer Centre maintains and operates three

computers—the EC-1030, the MINSK-2 and the HP-2100A. The Centre provides centralized Computational facilities for the various departments of the Institute, and also carries out computer-oriented projects. All posts are temporary, in the first instance, for a period of one year but they are likely to be permanent. Persons employed in Govt. Semi-Govt. organization or Educational Institution must apply through employer. Candidates belonging to SC/ST and Ex-Servicemen will be given preference. Mention the name of the post applied for on the top of the application. Incomplete applications will not be considered. Age preferably below 30 years, relaxable in deserving cases. All posts carry allowances such as D.A., C.C.A. etc. as per the rules of the Institute. Applicants must state:

- (i) Name in full with address
- (ii) Qualifications such as examinations passed, date of passing etc.
- (iii) Particulars of past and present employment with salary drawn.
- (iv) Date of Birth
- (v) Applications must be supported by:

(a) True copies (not original) of educational qualifications

(b) Postal Order for
Rs. 7.50 (Rs. 1.88 for SC/ST candidates) for posts at serials 1 and 5
Rs. 3.75 (Rs. 1.25 for SC/ST candidates) for posts at serials 2, 3 & 6
Rs. 1.25 (Rs. 0.42 for SC/ST candidates) for posts at serials 4, 7 & 8

Posts:

Maintenance & Development

1. Computer Engineer (3 posts):

Scale of Pay: Rs. 700-40-1100-50-1600

Qualifications:

Bachelor's Degree in Electrical/Electronics Engineering with two years relevant experience in Computer Systems, or M.Tech. in Computer Science with project / experience in Computer Systems.

2. Senior Technical Assistant (1 post):
Scale of Pay: Rs. 550-25-750-EB-30-900.

Qualifications:

Diploma in Electronics, or preferably Degree in electrical/electronics Engg. Two years experience in computer systems or digital electronics.

3. Junior Technical Assistant (1 post):
Scale of Pay: Rs. 425-15-500-EB-15-560-20-700.

Qualifications:

Diploma in Electronics with two years experience in digital electronics or computer systems.

4. Mechanic Grade 'A' (Electronics) (1 post):
Scale of Pay: Rs. 380-12-500-EB-15-560.

Qualifications:

Upto S.S.C. or equivalent. Trade Certificate/Ten years experience in electronics with experience in printed circuit board assembly.

Programming Staff

5. Senior Programmer/Systems Programmer (4 posts)

Scale of pay: Rs. 700-40-1100-50-1600.

Qualifications:

Bachelor's Degree in engineering or M.Sc. with Physics or Maths. with two years experience in computer programming and utilization, or M.Tech. Degree in Computer Science with relevant project/experience.

Operational Staff

6. Junior Technical Assistant/Junior Research Assistant (5 posts):

Scale of Pay: Rs. 425-15-500-EB-15-560-20-700.

Qualifications:

Diploma in Electronics or Bachelor's Degree in engineering or science. One year's experience in computer operation or knowledge of computer programming

7. Key Punch Operator (2 posts):

Scale of Pay: Rs. 330-10-380-EB-12-500-EB-15-560

Qualifications:

S.S.C. or equivalent. Certificate in key-punch operation, plus one year's experience. (A competitive test will be held)

8. Store Keeper (1 post)

Scale of pay: Rs. 330-10-380-EB-12-500-EB-15-560.

Qualifications:

Minimum S.S.C. or equivalent. One year's experience as Store-keeper, preferably for electronics parts and components.

NARENDRA DEV UNIVERSITY OF AGRICULTURE & TECHNOLOGY FAIZABAD (U.P.)

Advertisement No. 3/1976

Applications are invited for the following temporary posts likely to be made permanent on a prescribed form obtainable from the Administrative Officer, on payment of Re. 1/- through crossed Indian Postal Order in the name of the Comptroller, N.D. University of Agriculture and Technology, Faizabad. Demand for application form should also accompany a self-addressed envelope (size 23 x 10 Cm) affixed with a stamp of ninety five Naya Paisa only with the name of the post superscribed thereon.

1. Farm Manager:

Scale : Rs. 550-1200.

Essential:

A high second Class B.Sc. (Agr.) preferably with Master's Degree in Agronomy, (ii) Five years experience of managing a mechanised farm of repute.

2. Subject Matter Specialist: (a) Agronomy, (b) Plant Protection, Scale : Rs. 550-1200.

Essential:

High Second Class Master's Degree in the subject concerned. (2) Five years teaching/research/extension / professional experience in the field

Desirable:

Ph.D. in the discipline with rural background and aptitude to work with farmers.

3. Assistant Horticulturist:

Scale: Rs. 550-1200.

Essential:

High Second Class Master's degree in the subject, (ii) Five years experience of horticultural and plantation work

Desirable:

Ph.D. in Horticulture. Experience of gardening and landscaping

4. Assistant Maize Agronomist:

Scale: Rs. 550-1200

Essential:

Ph.D. in Agronomy, (ii) Three years teaching/Research experience

Desirable:

Experience of maize agronomy work.

5. Assistant Maize Breeder:

Scale: Rs. 550-1200

Essential:

Ph.D. in Plant Breeding / Genetics, (ii) three years experience of teaching research.

6. Assistant Engineer (Civil):

Scale: Rs. 550-1200.

Essential:

Degree in Civil Engineering or equivalent, (ii) Three years experience of work.

7. Assistant Store Purchase Officer:

Scale: Rs. 450-850

Essential:

Graduate with five years experience in a purchase organisation of Government / Semi Govt. on a responsible position and having thorough knowledge of Store Purchase procedure.

Note: (1) High starting salary is permissible. Dearness allowance is at U.P. State Govt. rates. Qualifications may be relaxed in suitable cases on the basis of higher experience or exceptionally brilliant record. Candidates having more than one third class in their entire academic career will not be considered.

(2) Application form duly completed should reach the undersigned accompanied with requisite fee etc. latest by 15th July (15th August for candidates abroad). The

applications received without the application fee is liable to be rejected. Candidates from abroad may apply on plain paper.

M. P. Srivastava
Administrative Officer

JAWAHARLAL NEHRU UNIVERSITY Advt. No. ACA. III/7/76

Applications are invited for the following positions:

School of International Studies:**Centre of East Asian Studies**

1. Associate Professor / Fellow, or Assistant Professor / Associate Fellow

Scale of pay: Associate Professor/ Fellow: Rs. 1200-50-1300-60-1900
Assistant Professor / Associate Fellow (Rs. 700-40-1100-50-1600)

School of Computer & Systems Sciences

2. Maintenance Engineer-cum-Programmer (Selected candidates will be given a consolidated salary of Rs. 700 per month during the first year and commensurate with the performance of the individual they would be eligible for absorption in a suitable capacity in the University).

Essential Qualifications:**For Sl. No. 1 :**

(i) A high second class Master's degree in any of the social science disciplines.

(ii) Doctorate or published work of equally high standard relating to the study of internal developments of contemporary China.

(iii) At least five years teaching and/or research experience for Associate Professor / Fellow and some teaching and/or research experience for Assistant Professor Associate Fellow .

For Sl. No. 2:

(i) A good Master's degree in Electrical Engineering or Electronics or a good B. Tech. degree in Electrical Engineering preferably followed by a Post-graduate Diploma in Computer Science or equivalent

Desirable: For Sl. No. 1 :

Field experience in the area/region concerned. Working knowledge of language / languages of the area/region

Relaxation in any of the qualifications may be made in exceptional cases, in favour of persons with high academic or professional distinction. It will be open to the University to consider the names of suitable candidates who may not have applied.

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outside Delhi by the shortest route subject to production of rail-receipts. Persons already in employment should route their applications through proper channel.

Application on the prescribed form obtainable free of cost from the University by sending a self-addressed and stamped envelope of 23 cm x 10 cm size to the Co-ordinator (Academic Affairs) Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110057, should reach him latest by 21st July 1976.

INDIAN INSTITUTE OF
TECHNOLOGY, KANPUR
IIT POST OFFICE, KANPUR
Advertisement No. 20/76

Applications are invited for the posts of Assistant Professors/Lecturers in the pay scale of Rs. 1200-50-1300-60-1900 and Rs. 700-40-1100-50-1600 respectively in the Department of Mathematics and Aeronautical Engineering as per details given below:

1. Mathematics Department:

8 Posts of Assistant Professors/Lecturers, one post of Lecturer is reserved for Scheduled Caste/Scheduled Tribe candidates. In the event of non-availability of SC/ST candidate the reserved post would be treated as de-reserved. The Department is seeking individuals with ability and aptitude for teaching, research and development in any of the following areas of interest:

1. Applied Statistics (Multivariate Analysis, Design of Experiments, Sample Surveys)
2. Numerical Analysis
3. Operator Theory
4. Differential and Integral Equations
5. Operations Research
6. Lie Groups and Lie algebras
7. Biomathematics

The Department is interested in interdisciplinary research in cooperation with other departments in the Institute and with industry.

Qualifications: For the post of Assistant Professor:

(a) Essential:

- i. A consistently good academic record in specified (or related) areas of specialization.
- ii. Doctorate degree with at least 5 years experience in teaching/research/industry with a satisfactory record and a record of independent Research activity beyond thesis work.

(b) Desirable:

Record of published work in referred Journals. Experience of guiding research and Computer experience.

Qualifications: For the post of Lecturer:

(a) Essential:

- i. A consistently good academic record in specified (or related) areas of specialization.
- ii. Doctorate Degree.

(b) Desirable:

Some teaching/Research/Industrial experience with a publication record and a strong interest in developing undergraduate Postgraduate programmes including curriculum development and also research and development activities of relevance to national needs.

2. Department of Aeronautical Engineering

3 posts of Assistant Professors/Lecturers, one post of Lecturer is reserved for Scheduled Caste/Scheduled Tribe candidates. In the event of non-availability of SC/ST candidates the reserved post would be treated as de-reserved. The Department is seeking individuals with ability and aptitude for teaching, research and development in any of the following areas of interest:

1. Flight Mechanics
2. Aircraft Design
3. Gas Turbine
4. Random Vibrations.

Qualifications: For the post of Assistant Professor:

(a) Essential:

- i. A consistently good academic record in specified (or related) areas of specialization
- ii. Doctorate Degree with atleast 5 years experience in teaching/research/industry with a satisfactory record and a record of independent research/developmental activity beyond thesis work

Or

M Tech. (or equivalent) degree with atleast ten years of practical experience in a position of responsibility in a public or private undertaking with a record of significant and meaningful development/project activity

(b) Desirable:

Publications in referred Journals-Patents

Qualifications: For the post of Lecturer:

(a) Essential:

- i. A consistently good academic record in specified (or related) areas of specialization.
- ii. Doctorate Degree

Or

M.Tech. (or equivalent) degrees with atleast four years of practical experience in a public or private undertaking with a record of personal accomplishments in developmental/project activity.

(b) Desirable:

Some teaching/research/industrial experience with a publication record

and a strong interest in developing undergraduate, post-graduate programmes including laboratory and curriculum development and also research and development activities of relevance to national needs.

In exceptionally meritorious cases, the Selection Committee may relax the required number of years of experience for all posts.

Posts are permanent and carry retirement benefits in shape of CPF, CPF-cum-Gratuity and GPF-cum-Pension-cum-Gratuity Schemes. The age of retirement is sixty years.

During the first year the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare for travel inside India from the place of duty to Kanpur and back by the shortest route.

The Indian Institute of Technology, Kanpur has well equipped laboratories and central facilities. The Computer Centre has IBM 7044, 1401 and 1800 and PDP-1 systems as also ECIL TDC-316 and a group of experienced programmers. The following Central facilities are available: 2 Mv Van de Graaff accelerator, 4096 multi channel analyser and other radiation detection equipment, Liquid nitrogen and liquid helium plants, NMR, EPR, Mass Spectrometer, X-ray Plant, UV and IR spectrometers, glass blowing shop, crystal growth facility, central instrumentation laboratory, precision machine shop, electron microscope besides a large workshop for the fabrication of specialized research apparatus. The Institute has a well stocked library with a more than 1,50,000 volumes and 1,300 periodicals, the campus facilities include a primary and higher secondary schools, a health centre and shopping centre.

Applications should be made on the prescribed forms, obtainable free of cost from the Registrar of the Institute sending a self-addressed unstamped envelope of 25 x 10 cm (Applications should be accompanied by a Indian Postal order of Rs. 7.50 (Rs. 1.87 for SC/ST candidates).

Those abroad may apply on plain paper giving full particulars including the Department and area of interest. They should give names of three experts who can comment on the work and competence of the applicant.

All the applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 U.P. (India) on or before July 31, 1976.

Candidates selected will be expected to join the Department at the earliest.

UNIVERSITY OF RAJASTHAN JAIPUR

Advertisement No. 3/76

Applications are invited (through proper channel in case of those already in employment) so as to reach this office on or before the 26th July, 1976 in the prescribed form available from the Registrar's office on prepayment of Rs. 4/- (Rs. 3/- extra in case required by post) for the under mentioned posts:

1. Professor of Chemistry (Inorganic)—1.
In the grade of Rs. 1100-50-1300-60-1600.

Essential Qualifications: A first or second class Master's degree of an Indian University or equivalent qualification of a foreign University in the subject concerned, (ii) either a research degree of a doctorate standard or published work of a high standard, and (iii) ten years experience of teaching at a University or a College, or ten years post doctoral research experience and considerable independent published research work and some experience of guiding research.

Note: The above post of Professor of Chemistry has been advertised in supersession to our previous advertisement No. 276 dated 30.4.76 and therefore those persons who have applied previously need not apply afresh.

2. For University Institute of Correspondence Studies & Continuing Education:

(I) Reader in Continuing Education—1.
In the grade of Rs. 700-50-1250

Essential Qualifications: (i) A first or second class Master's degree of an Indian University or an equivalent qualification of a foreign University in any one of the subject of (a) Adult Education (b) Social work (c) Sociology (d) Psychology (e) Education, and (f) Rural Sociology with specialisation in Adult Education (ii) either a research degree of a doctorate standard or published research work of a high standard, (iii) five years experience of teaching in any one or more of the subjects mentioned above at the University or a College or five years post-doctoral research experience and three years experience of field work with or without teaching.

Note: 1. The term 'Field Work' shall mean a whole time activity involving regular, continued and actual engagement in non-formal educational work amongst rural and urban communities or amongst any other special class of people on behalf of a statutory or registered and recognised Adult Education/Social Education / Social Welfare Institution or Organisation.

2. The expression 'Master's degree in Education' does not include the M.Ed. degree.

(II) Reader in Human Relations and Management Skills—1.

In the grade of Rs. 700-50-1250

Essential Qualifications: (i) A first or second class Master's degree in one of the Social Sciences (Business Management/Business Administration/Law of an Indian University or an equivalent qualification of a foreign University, (ii) Either a Research degree of doctorate standard or published work of high standard, and (iii) Five years experience of

teaching at a University or a College OR five years experience of student services/social work.

Note: In case of otherwise outstanding candidates the Selection Committee may recommend suitable relaxation.

(III) Lecturer in Continuing Education—1.
In the grade of Rs. 400-40-800-50-950.

Essential Qualifications: A first class Master's degree of an Indian University or an equivalent qualification of a foreign University in any one of the subjects of (a) Adult Education, (b) Social Work, (c) Sociology, (d) Psychology, (e) Education and (f) Rural Sociology with specialisation in Adult Education or a Second class Master's degree of an Indian University or an equivalent qualification of a foreign University in any one of the aforesaid subjects with three years experience of teaching one or more subjects listed above and/or Field Work in Adult Education, or a Bachelor's degree in Adult Education.

Note: Same note as mentioned above below the post of Reader in Continuing Education.

(IV) Lecturer in Human Relations and Management Skills—1.

In the grade of Rs. 400-40-800-50-950

Essential Qualifications: A first or second class Master's degree in one of the Social Sciences Business Management Business Administration Law of an Indian University or an equivalent qualification of a foreign University and three years experience of teaching at a University or a College OR three years experience of student services/social work.

Note: In case of otherwise outstanding candidates the Selection Committee may recommend suitable relaxation.

(V) Lecturer in Home Science (Nutrition & Dietetics)—2.

In the grade of Rs. 400-40-800-50-950.

Essential Qualifications: A first or second class Master's degree in Home Science of an Indian University or an equivalent qualification of a foreign University with specialisation in Nutrition and Dietetics and three years experience of teaching the subject at a University or a College OR three years accredited research in the subject or a Doctor's degree.

(VI) Lecturer in Journalism—1.

In the grade of Rs. 400-40-800-50-950.

Essential Qualifications: A first or second class Master's degree in Journalism of an Indian University or an equivalent qualification of a foreign University, OR a first or second class Master of Arts degree of an Indian University or an equivalent qualification of a foreign University and Diploma in Journalism awarded by a University/Government's recognised Institution, OR a first or second class Master of Arts degree of an Indian University or an equivalent qualification of a foreign University, and at least five years experience of Journalism.

(VII) Lecturer in History of Indian Civilisation and Culture—1.

In the grade of Rs. 400-40-800-50-950.

Essential Qualifications: (i) A first class Master's degree in the subject concerned or in allied discipline of an Indian or foreign University or a second class Master's degree with at least three years experience of teaching degree classes or accredited research experience of at least

three years (Preferably research degree or three years experience of Statistical work). Preference will be given to the candidates having good knowledge of Indian History and Culture.

(VIII) Lecturer in Indian Languages (Tamil)—1.

In the grade of Rs. 400-40-800-50-950.

Essential Qualifications: (i) A first class Master's degree in Tamil or in allied discipline of an Indian or foreign University or a second class Master's degree with at least three years experience of teaching degree classes or accredited research experience of at least three years (preferably research degree).

Note: 1. The revision of the grade of all the above posts is under consideration of the State Government.

2. In connection with the posts of Professor, Readers and Lecturers advertised for South Asia Studies Centre vide Univ. Advertisement No. 176 dated 17.4.1976 mentioning in the details of qualifications that essential qualifications for the aforesaid posts will be the same as for the Professors, Readers and Lecturers in Political Science, it is notified that all the candidates holding Master's degree in any of the subjects of Social Sciences will be eligible for applying for the aforesaid posts of South Asia Studies Centre. Such applications will be entertained upto 10th July, 1976.

3. Estate Officer-cum- University Engineer—1.

In the grade of Rs. 700-50-1250.

Essential Qualification: (i) B.E. (Civil) (ii) At least five years service as Asstt. Engineer (Civil) or if Diploma holder from recognised Institution 15 years service as Asstt. Engineer (Civil).

4. Deputy Librarian—1.

In the grade of Rs. 700-50-1250.

Essential Qualifications: (i) A first second class B.A.B.Sc./BSc.P.Com. degree plus first or second class M.Lib.Sc. degree (two years course) OR first second class M.A./M.Sc. M.Com. degree and 1st or 2nd class B.Lib. Sc. degree or one year Diploma Course in Lib. Sc. (ii) At least five years experience as Librarian or of teaching Library Science at Degree level or of working in a responsible professional capacity in a Library.

Benefits of P.F. Addl. D.A. and other allowances will be admissible as per University rules. Candidates desiring to apply for more than one post must send their separate application for each post. Candidates will be called for interview at their own expenses. Canvassing in any form will be a disqualification.

(i) It will be open to the University to consider the names of suitable candidates who may not have applied.

(ii) Higher start may be given to deserving candidates.

(iii) In exceptional cases relaxation in the requirement of experience may be made by the Selection Committee.

Sd/-
L. P. Valsi
REGISTRAR

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Baskaran, S. Studies in Algebra and analysis CLT and non-CLT groups. University of Madras
2. Kalla, Shyam Lal. Integral equations and boundary value problems of mathematical physics. D Sc. University of Jodhpur
3. Laxmi Narain. Application of an extended variational technique to heat and mass transfer problems. University of Delhi.
4. Misra, Arbinda Deb. Some contributions to matrix theory and mathematical programming. University of Gauhati
5. Parvathi, M. On the quotient problem for quadratic Jordan algebras. University of Madras.

Physics

1. Adhyapak, Sulabha Vasantrao. Design and construction of an automatic scanning X-ray spectrometer and study of bond character in zinc compounds. University of Poona.
2. Basu, Baidyanath. Harmonic generation mixing and related phenomena in double-beam and beam-plasma systems. University of Calcutta.
3. Jagannathan, R. Studies in generalized Clifford algebras, generalized Clifford groups and their physical applications. University of Madras.
4. Juneja, O. P. Fast neutron spectrometry with solid state detectors. University of Bombay.
5. Mokashi, Ramesh Yeshwant. Investigations on the upper atmosphere over India and neighbourhood. University of Poona.
6. Pavaskar, Neela Raghunath. Electrical and photo-conducting properties of chemically deposited thin films of Cds. University of Poona
7. Ramasamy, P. Positron annihilation in solids—two photon angular correlation. University of Madras
8. Rathor, Sharad Kumar. Dipolar absorption in solid state plasma. Indore University.
9. Vaishnav, P. P. Spectral study of rare earth complexes in different environment. University of Jodhpur.
10. Varma, Ramesh R. Dielectric and other properties of thin films. University of Poona.

Chemistry

1. Bhomrah, Jaswant Singh. Studies on the adsorption properties of transition metal zeolites. University of Poona.
2. Chandwadkar, Jeevan Gajanan. Dielectric constant and molecular structure. University of Poona.
3. Dhinoja, Ishvarlal Tribhovandas. Synthesis and study of anthraquinone pyrimidine dyes. Sardar Patel University
4. Jadhav, Perminder. Catalytic dehydration of castor oil. University of Bombay.
5. Kalia, Anjan Kumar. Electrical conduction and diffusion studies in crystals containing hydrogen bond. University of Poona.
6. Kavathekar, Bhagyashree Jayant. Reactions of metal complexes. University of Poona.
7. Kharkhanis, D. W. Isolation, reactions and rearrangements of sesquiterpenes. I.I.T., Bombay.
8. Master, H. E. A study of a few derivatives of p-substituted anisole. University of Bombay.
9. Mirza, D. J. Studies in basic steroids. University of Bombay.

10. Palaniappan, R. Studies in the synthesis of furoquinoxalines. University of Madras.
11. Raj Pal. Chemical investigation of Indian medicinal plants. Indore University.
12. Ramaswamy Ayyar, K. Salt effects in some S_N1 reactions. University of Kerala.
13. Ranade, M. M. An X-ray diffraction study of the crystal and molecular structures of some organic compounds. I.I.T. Bombay.
14. Ray, Jayanta Kumar. Synthetic studies in bridged-ring compounds. University of Calcutta.
15. Sharma, Shyam Dev. Displacement reactions on halo and alkoxy silanes with particular emphasis on the synthesis of new sila alicyclics and sila-ketones. Kanpur University
16. Sreedharan, O. M. Some thermodynamic studies on higher temperature materials. University of Bombay
17. Sushila. Potentiometric and kinetic studies with periodic acid. University of Jodhpur
18. Trivedi, Hanikrishna Chandulal. Studies on carboxymethyl cellulose. Sardar Patel University
19. Uma Devi, Y. Synthesis, reactivity and spectral characteristics of isoxazoles and their derivatives. Osmania University.
20. Vasudevan, R. Oxidation studies using cerium (iv). University of Madras.
21. Venkateshan, M. S. Magnetic and spectral studies on some first row transition metal dihydrophosphates. I.I.T., Bombay
22. Yelwande, Vijaya Shankarrao. Stereochemical studies in flavanoids. Synthesis and stereochemistry of flavan-3, 4-diols belonging to the auriculacacidin series. University of Poona

Engineering & Technology

1. Chandak, Badrinarayan Shiwlal. Studies in mass transfer (vapour-liquid equilibria). Nagpur University.
2. Hajra, Lakshminarayan. Anodisation of telescopes working in a turbulent medium. University of Calcutta.
3. Muju, M. K. Effect of magnetic field on wear. I.I.T., Kanpur.
4. Mulay, J. M. Shock waves in underground media—some studies. I.I.T., Bombay
5. Panda, Ramapati. Post polymerization of methyl methacrylate in aqueous medium by electro-initiation. University of Calcutta.
6. Parikh, P.P. Some convective heat transfer problems in parallel-plate channels considering wall thermal resistance. I.I.T. Bombay.
7. Rajadhyaksha, R.A. Some aspects of fixed bed reactor design. University of Bombay.
8. Satyamurti, V.V. Studies of fully merged layer regime in the stagnation region of a circular cylinder. I.I.T., Kanpur.
9. Sundersingh, V. P. Some studies in ion implantation (System study). I.I.T., Bombay.
10. Thanikachalam, V. Studies on the design of protective filters for earthen structures. University of Madras.
11. Vaithilingam, M. C. Sub-optimal design of linear regulators. University of Madras.
12. Venkatraman, K. Fracture stress as failure criterion in multi-level fatigue stressing. University of Madras.
13. Wagh, Mahadeo Sadashiorao. Physico-chemical studies of some bifunctional catalysts in petrochemical industry. Nagpur University.

BIOLOGICAL SCIENCES

Biochemistry

1. Bandyopadhyay, Dipak Kumar. Studies on glycoproteins (urinary glycopeptide and glycoprotein). University of Calcutta.
2. Bhalerao, Sudhakar Dattatray. Investigation on the preparation and storage of kagzi nimboo, *Citrus aurantifolia* (Swingle) juice concentrate. Nagpur University
3. Makhija, Surinder Joginder. Effect of insecticides on hepatic drug metabolising enzymes and lipid peroxidation. Marathwada University
4. Salgaonkar, D.P. Biochemical studies in protein-calorie malnutritions with special reference to lipid metabolism. University of Bombay.
5. Tanksale, K.G. Studies in lipids: Effect of feeding shark liver oil to rat. University of Bombay.

Botany

1. Bansal, Ashok Kumar. Ecology of grasslands on Bhata soils of Bilaspur. Ravishankar University.
2. Bharati, Sudhakar. Hormonal control on the metabolic activities of plants. Gujarat University
3. Dua, Kishan Lal. Ecology of *Saccharum officinarum* (Linn) primary productivity, mineral status and energy budget. Meerut University.
4. Hazurasingh, Karamsingh. Morphological and anatomical studies in the sympetalae-II. Marathwada University
5. Jamale, Bajirao Bapurao. Physiological studies in saline plants. Shivaji University.
6. R.V. Singh. Drymatter production in chir pine plantations. Himachal Pradesh University
7. Rikhy, Madhu Bala. Ecology of microfungi associated with leaves of *Triticum aestivum* (CV) Kalyan Sona. University of Delhi.
8. Sambamurti, A.V.S.S. Cytogenetics of CR₁ mutant and some chemically induced mutants of rice, *Oryza sativa* (L.). Andhra University.
9. Surjeet Kaur. Algal flora of Delhi and its environs with special reference to seasonal periodicity. University of Delhi.

Zoology

1. Chakraborti, Dilipkumar. Faunistic survey of the soil oribatid mites (Acari) from the Districts of Nadia and 24-Parganas, West Bengal. University of Calcutta.
2. Dubey, Gopikant. Studies on the development and morphology of skull of *Cirrhina mrigala* (Cuv and Val). Indore University
3. Gaikwad, Uttamrao Dashrathrao. Studies on polychaetes of Ratnagiri. Shivaji University.
4. Girish Chandra. Studies on the oriental genera and species of the tribes *Issonotini* and *Banchini* belonging to the subfamily *Banchinae* (Hymenoptera : Ichneumonidae). University of Delhi.
5. Jalaja, M. Studies on vitellogenesis in *Dysdercus cingulatus* (Insecta : Heteroptera : Pyrrhocoridae). University of Kerala.
6. Khan, Abdul Aziz. Histochemical studies and life history of the trematode, *Tremiorchis ranarum*, Indore University.
7. Krishna Murthy, Radha. On the possible mechanisms and their probable significance of in vitro regulation of succinate dehydrogenase activity in sheep brain cortex. Sri Venkateswara University.
8. Natarajan, P. Studies on the parasitic copepods with special reference to host parasite relationship. University of Kerala.
9. Pradhan, M.S. Studies on Bombay rats. University of Bombay.

10. Ramanaih, Banda Venkata. Studies on the families *clinostomatidae* and *thaparellidae* (Trematoda). Ravishankar University.

11. Vijayan, V.S. Ecological isolation of bulbuls (Family : *Pycnonotidae*, Class : Aves) with special reference to *Pycnonotus cafer* (Linnaeus) and *P. luteolus luteolus* (Lesson) at point Calimere, Tamil Nadu. University of Bombay.

Medical Sciences

1. Biswas, Lina. Some studies on the effect of impropionazi : A monoamine oxidase inhibitor in the interruption of pseudo-pregnancy or pregnancy in rats. University of Calcutta.
2. Chaudhuri, Rameshwar. Istirog. K.S. Dasbhang Sanskrit University.
3. Pendse, R.A. Wood, bark and fruit extractives from some Indian plants. University of Bombay.
4. Menon, I.R. Anti-tumour activity of neoplastic cell extract. University of Bombay.
5. Sukhdev Singh. Study of synthesis of new potential local anaesthetics in durenene series. Punjabi University.

Agriculture

1. Daya Nand Singh. Genetics of yield and certain other quantitative characters in pearl millet, *Pennisetum typhoides* (Burm.) Stapf and Hubb. Meerut University.
2. Jagdish Kumar Singh. Genetics of protein quantity and quality in urd bean, *Phaseolus mungo* (L.) Punjab Agricultural University.
3. Krishan Autar. Studies on the bearing behaviour of *Mangifera indica* (L.) and its malformation. Punjab Agricultural University.
4. Rajaram, K.P. Studies on metabolism of pesticides in rice soils. Orissa University of Agriculture and Technology
5. Ram, Ram Bilas. Optimum traction efficiency of soil-tire system in light soil. Punjab Agricultural University.
6. Ram Kanwar. Growth and yield parameters of two plant types of cotton *Gossypium hirsutum* (L.) and *Gossypium arboreum* (L.) as influenced by certain organic acids and cycloel. Harayana Agricultural University.
7. Rupela, Om Parkash. Studies on hydrogen sulphide production in wines. Harayana Agricultural University.
8. Sandhu, Kuldip Singh. Purification and serological characterization of chilli, *Capsicum annum* (L.) mosaic viruses. Punjab Agricultural University.
9. Surjan Singh. Genetic studies in musk-melon, *Cucumis melo* (L.). Punjab Agricultural University.
10. Verma, Rajendera Singh. Studies on the effect of variable tillage on soil properties, growth, yield and quality of bajra and wheat grown in rotation. Harayana Agricultural University.

Veterinary Science

1. Chandna, Indra Sen. Studies on the disorders of vertebral column and spinal cord in caprines with special reference to myelography. Harayana Agricultural University.

SOCIAL SCIENCES

Journalism

1. Tripathi, Priti Lata. Sanskrit patrakita ka udbhav va vikas. Ravishankar University.

Psychology

1. Deshpande, Sudhakar Wasudeo. Anxiety background meaningfulness and the Von Restorff isolation effects in serial verbal learning. Nagpur University.
2. Dwarka Pershad. Construction and standardization of a clinical test of memory in simple Hindi. Postgraduate Institute of Medical Education and Research.

3. Harigopal, Kondur. Self-ideal disparity (SID) and personality factors among college students. Andhra University.

4. Jogawar, Vasant Vinayak. Development of self concept in relation to some family factors at the adolescence level. Nagpur University.

Sociology

1. Deka, B.K. Fertility and haemoglobin genotypes : A Population study in Upper Assam. Dibrugarh University.

2. Gadde Narayana. Scheduled caste M.P.'s in the Lok Sabha. Meerut University.

3. Kar, R.K. The Savaras of Mancotta : A study on the effects of the tea industry on the tribal life. Dibrugarh University.

4. Ravindra Prasad Rao, Chaganti. Agricultural innovations among Andhra Pradesh farmers: A structural approach to casual model building. Andhra University.

5. Shetty, S.B. Personnel executive and union leader in industry. University of Bombay.

6. Thara Bhai, L. Changing pattern of social stratification in Kerala. University of Kerala.

Political Science

1. Bandyopadhyay, Dalimkumar. The Indian National movement and students, 1805-1937. University of Calcutta.

2. Bhalerao, Sudhakar Vasudeorao. Social and political thought of Shri V.D. Sawarkar. Nagpur University.

3. Jha, Khagesh Rajneeti Sameeksha. K.S. Darbhanga Sanskrit University.

4. Kalim Bahadur. The Jamaat-i-Islami of Pakistan : Political thought and Political action. J.N. University.

5. Mattoo, Man Mohini. Philippine foreign policy with reference to Southeast Asia 1961-69. J.N. University.

6. Rath, Sharada. Centre-State relations in the field of social services in the United States of America, Australia and India. Utkal University.

7. Ray, Animesh Chandra. Administration of Mizoram. Evolution and problems. University of Calcutta.

Economics

1. Bhupinder Singh. A micro-level study of capital formation in Punjab agriculture. Punjab Agricultural University.

2. Pracer, Rameshwar Datt. Estimation of demand functions for milk in Hissar Block I, Haryana. Haryana Agricultural University.

Education

1. Bisnagar, U.A. The construction and standardization of Gujarati handwriting scale for pupils of standard V to XI. Gujarat University.

2. Devendra Pal Singh. A comparative study of the effectiveness of the programme learning material on the achievement of blind and sighted children in modern mathematics taught by different methods. Meerut University.

3. Gupta, Babu Ram. An exploratory investigation into the present educational administration with a view to streamlining it. Punjabi University.

4. Gupta, Nirmala. A study of some variables related to students, teachers and instructional material having their bearing on learning outcomes in biology. University of Delhi.

5. Saxena, Sateshwari. Educational planning in India : A study in approach and methodology. Indore University.

6. Sethi, A.S. A study of a programme in English spellings in relation to visual and auditory presentation. Himachal Pradesh University.

Commerce

1. Amarendranath, Pal. Role of monetary policy during the Fourth Five Year Plan in India. University of Calcutta.

HUMANITIES

Philosophy

1. Ghosh, Ranjan Kumar. Mrs. Langer on the 'virtual' in painting : An analytical study. Meerut University.

2. Mandal, Lila. The conception of self in Indian philosophy : An approach from the neo-vedantic standpoint. University of Calcutta.

3. Muley, Dattatraya Govind. The Stevensonian tradition in ethics. Nagpur University.

4. Sridatto, P.B. A critical study of the Maha-Nipata-Jataka and its commentary from the point of view of ethics. University of Delhi.

Linguistics

1. Bhattacharya, Shefali. A comparative (synchronic) study of four Malvi dialects. University of Poona.

2. Pradhan, Appanna. A comparative study of verb-roots and vocables of Hindi and Oriya. University of Calcutta.

3. Salam, Fareed Syed Abdul. Kanyakumari Muslim Tamil : A descriptive analysis. University of Poona.

Literature

English

1. John, K.J. The dramatic vision of Thornton Wilder. Nagpur University.

2. Mishra, Ganesh Prasad. Dylan Thomas as a religious poet. Bhagalpur University.

3. Shastri, Aruna. A critical study of Eugene O'Neill as a tragic artist (his mind and art). Indore University.

Sanskrit

1. Abhyankar, Kamal. Ratashekhhar and his theory of poetry. S.N.D.T. Women's University.

2. Chakrabarti, Chhanda. Folklore in the Rigveda and the Atharvaveda. University of Calcutta.

3. Deb, Anamika. Sabdatattvavimarsah. University of Calcutta.

4. Jha, Banshi Dhar. Aastik darshan mein srishhti tatha pralaya. Ravishankar University.

5. Jha, Jagannath. Mahamahopadhyaya Gokulnath evam unka ras maharnav. K.S. Darbhanga Sanskrit University.

6. Joglekar, Moreshwar Vasudev. A critical edition of Ujjvaladatta's Gloss (Vrtti) on the Unadi sutras. University of Poona.

7. Kansal, Pushap Lata. Chhatrapati Shivaji sambandhi Sanskrit sahitya ka adhyayan. Indore University.

8. Lath, Mukund. A study of Dattilam. University of Delhi.

9. Laxmi Chandra. A critical study of the commentaries on the samkhyakarika. University of Delhi.

10. Mohapatra, Gopinath. A critical introduction to Purusottama Mahatmyam and its English translation. University of Jabalpur.

11. Pai, S.G. Ramapanivada : A study of his works—Sanskrit and Prakrit. University of Bombay.

12. Pandey, Radha Kant. Kundanmala tatha uttar Ramcharit natak ka tulnatmak adhyayan. Kanpur University.

13. Sharma, Manju Kumar. Keshav Mishra tarkacharya krit Alankar Shekhar ka samikshik adhyayan. K.S. Darbhanga Sanskrit University.

14. Virendra Kumar. Mahabharat mein prakrit ka anusheelan. University of Saugar.

Hindi

1. Agnihotri, Ram Babu. Hindi bhakt kaviyon ka Bharat ke rashtreeya ekta mein yogdan. Kanpur University.

2. Bhanumathy, S.R. Kamavani ka shaili tatwik adhyayan Sri Venkateswara University.

3. Bharathi Devi, C. Chhavavadi kavya mein prakriti chitrai Sri Venkateswara University.

4. Bhaskaran Nayar, S. Tunchat Ramanujacharya evam Goswami Tulsi Das ka Ram kavya ke tulnatamak adhyayan Kanpur University.

5. Debara, Zerin Iqbal. Pant aur Shelley. Prakriti darshan evam rahasyatmak bodh paksh. Osmania University.

6. Dhinra, Suresh Kumar. Svatantryottar Hindi upanyas mein parivaarvighatan ki samasya. University of Delhi.

7. Kalra, Subhash Chandra. Vigyanik pragn ke sandarbh mein sahitya. Chetna. Hindi ke vikas ka adhyayan Meerut University.

8. Phalkey, Keshao Avankatrao. Banjari boli ke lok sahitya ka adhyayan. Nagpur University.

9. Rampure, Pushpalata Baburao. Baniara lok sahitya ka moolvakan. Shivaji University.

10. Ram, Suraj. Prem Chandrotar upanyason mein sanskritik roopyon ka vighatan. Meerut University.

11. Sahu, Rohini Lal. Chhatisgarhi prahelikaven evam tadadharit sanskriti. Ravishankar University.

12. Sharma, Gajender. Satsagar mein nihit bal manovi-
evan. Indore University.

13. Sharma, Shakunda. Hindi natkon mein varg sang-
harsh. Meerut University.

14. Sharma, Tara Chand. Madhyakaleen Hindi aur
Gurukul kavay mein varg dva-varnam. University of Delhi.

15. Shriv, Shankar Singh. Suryakant Tripathi Nirala ke
kavya bha-ha prayog. Bhaagpur University.

16. Shrivastava, Uma. Vandayan Lal Verma ke natkon
ka mochanatmik adhyayan. Bhopal University.

17. Shrivastava, Lakshmi. Adhunik Hindi aur Gujarati kavya
mein rashtriva chetna. University of Delhi.

18. Tripathi, Sachin. Dhruvdas ke kavya ka gaveshtar-
mik adhyayan. University of Delhi.

19. Tripathi, Ramayan Prasad. Samrat Ashoka ke krishak
nahil kachhe. Awadhesh Pratap Singh University.

20. Tripathi, Ram Dulare. Sadhay sampardaya (Kavya
ka darshan). Kanpur University.

21. Upadhyay, Nagendra Nath. Tantrik bodh Sidh-
acharya Krishan varpad ke abhinavish rachnaon ka adhyayan
evam sampadna. Kanpur University.

22. Upadhyay, Prakash Chander. Hindi sap kavya
ka kritikatmak roornhi. Indore University.

23. Wadagavi, Beena Balappa. The comparative study
of novels of Yashpal (Hindi) and Basavaraj Kallimani (Kan-
nada). Karnatak University.

24. Yadav, Lekh Raj. Bhavavyatikaha aur Padmavat ke
kathanirudhyayan aur kavirudhyayan. University of Delhi.

Urdu
1. Nominani, K.M.H. Urdu ke tafatqi mein Darul Musan-
nein ka hissa. University of Bombay.

Bengali
1. Gangopadhyay, Basanti. Rabindra katha sahitye
charitra bhakhyan. University of Calcutta.

2. Mitra, Maya. Akshaykumar Badaler kabita. Uni-
versity of Calcutta.

3. Mitra, Pranab Kumar. Nivartbad-o-Bangla sahitye
sahar prabhav. University of Calcutta.

4. Mukhopadhyay, Barun Kumar. Bangla mudrita
granther adhyug. University of Calcutta.

5. Sengupta, Ramendranarayan. Unabimsa satabdir
vengala sahitya samya chinta. University of Calcutta.

Oriya
1. Dash, Gaganendranath. Descriptive morphology of
Oriya. Utkal University.

Marathi

1. Deshpande, Shashikant Shantaram. Natakak P.K.
Atre. Ek chikitsak abhyas. University of Poona.

Gujarati

1. Pathak, U.R. The development of the theme of
"Okhaharan in the Gujarati literature". Gujarat University.

Persian

1. Shaikh, Hazrat Mohiyuddin. The origin and deve-
lopment of rubayiyat in persian poetry till the end of Seljug
period. Nagpur University.

Tamil

1. Thomas, Annie. Mrithulakumari. Tamil prosody
through the ages. University of Kerala.

Kannada

1. Kapse, Guruling Shankarappa. Madhurchanna: A
critical estimation of his life and works. Karnatak University.

Geography

1. Agarwal, Tiloki Nath. Pressure of population on
rural and use in Bareilly. Meerut University.

2. Basu, Arati. Socio-economic transformation of the
Munda community in West Bengal: A study in cultural
geography. University of Calcutta.

3. Hajra, Jayati. Medical geography of West Bengal.
University of Calcutta.

4. Har Prasad. The Dehradun: A microregional study
with special reference to intergrated area development. Meerut
University.

5. Mitra, Dilip Kumar. Recreational evaluation of West
Bengal. A geographical study of the present conditions and
future scope of tourism in the State. University of Calcutta.

6. Pradhan, P.N. Geoeconomic planning of the Rapti
valley. Utkal University.

7. Sarma, Madhab Chandra. Structural analysis of the
city of Gauhati. A geographical study. University of Delhi.

History

1. Abnash Chander. British policy towards the Punjab
States 1858-1905. Punjab University.

2. Amatya, Shaphalya Prasad. Rana rule in Nepal.
The last phase, 1939-1951. J.N. University.

3. Bordia, Hirabai. Jain dharm kee sadhviyon evam
vidushee mahilaon ka itihaz. Indore University.

4. Das, Biswarupa. Bhauma-karas of Orissa. Utkal
University.

5. Kailash Behari. Role of Oudh in the revolt of 1857.
University of Jabalpur.

6. Kameswara Rao, K.S. Vikramaditya-VI. Andhra
University.

7. Parhy, Tharigopula Venkata. Elura: A cultural study.
Marathwada University.

8. Rao, P.R. History of Bombay 1818-1840. University
of Bombay.

9. Sawant, Ankush Balaji. Egypt's sub-saharan Africa
policy: 1952-70. objective, implementation and assessment.
J.N. University.

10. Sharma, Radheysyam. Katha sarit sagar varnit
tanjeesvan. Indore University.

11. Shete, Krishna Atmaram. Gurkha regiments in British
India (1816-1947). Nagpur University.

12. Upadhyay, Jagdish Chander. Delhi sultanon ke
adheen Malwa: Ek rainatik aur sanskritik sarvekshan, 1305-
1401. Indore University.

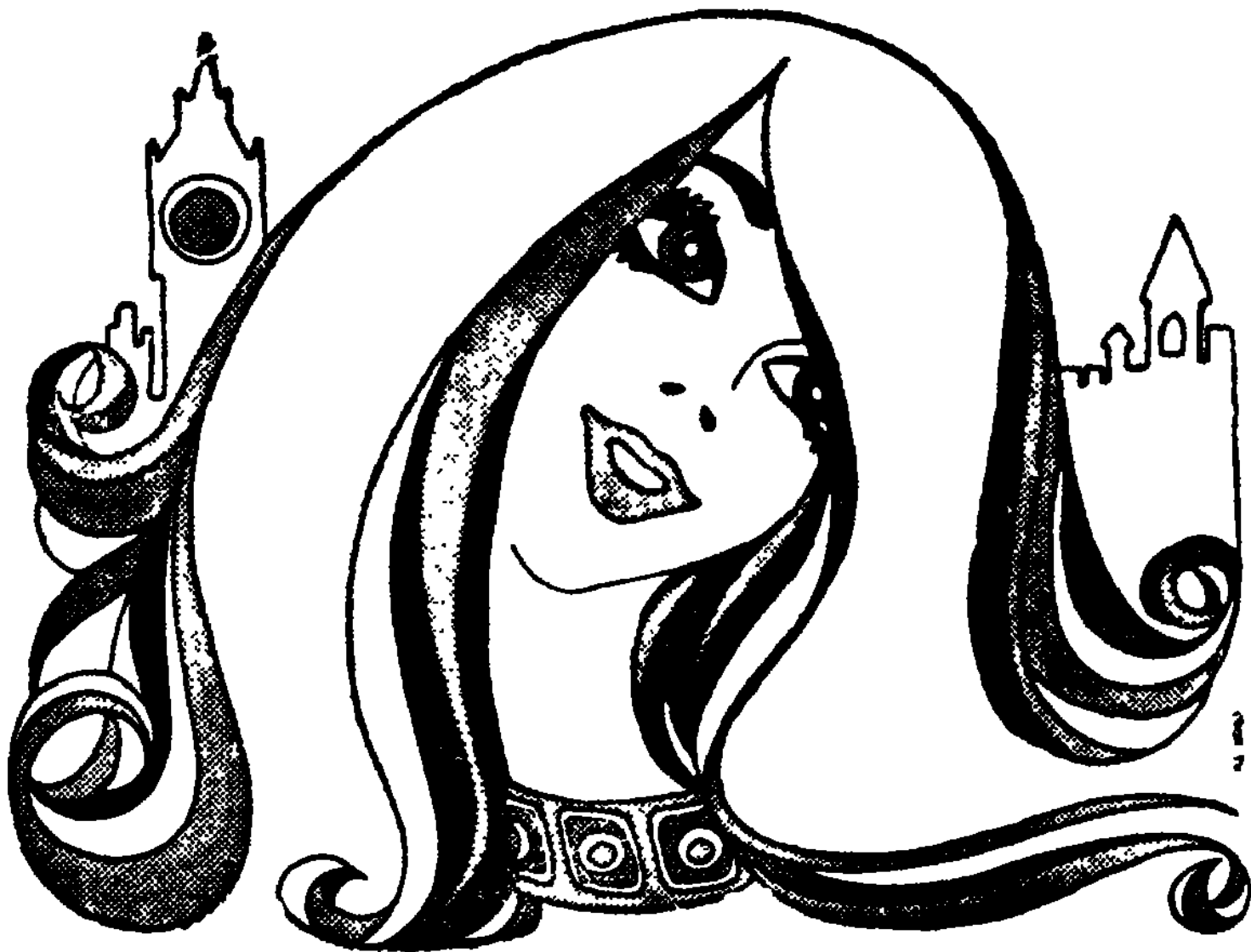
13. Venkateswara Rao, Tadiboyina. Local bodies in Pre-
Vijayanagar Andhra 1000 A.D. to 1336 A.D. Karnatak Uni-
versity.

The swans are beautiful in London

So we fly there oh so often!

London Town
a capital town where you can
laze in the park, star gaze,
window shop, theatre, ballet,
avant-garde movies.

AIR-INDIA
the airline that offers so much



University news

A CHRONICLE OF HIGHER EDUCATION & RESEARCH AUGUST 1976 Re. 1.25



Dr. G Rangaswami arriving at Anand Campus to deliver the Third Annual Convocation Address of Gujarat Agricultural University

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF DELHI Advt. No. Estab. IV/35/76

Applications on the prescribed form are invited for the following posts :-

S.No.	Department	Designation
1.	English	One Professor
2.	Geography	One Professor
3.	Economics	One Reader (Temp. upto. 25.7.1978)
4.	Geology	Two Lecturers
5.	Faculty of Law :	
	Evening Law	Two Lecturers
	Centre No 1	(Temp)

The Scales of Pay of the posts are :-

1.	Professor	Rs 1500-60-1800-100-2000-125-2-2500
2.	Reader	Rs. 1200-50-1300-60-1900
3.	Lecturer	Rs. 700-40-1100-50-1600

All posts carry D.A., C.C.A and H.R.A. as admissible under the rules in force from time to time.

I. ESSENTIAL QUALIFICATIONS FOR :-

1. Professorships :-

A Scholar of eminence Independent published work of high standard and experience of teaching Post-graduate classes and guiding research for a considerable period desirable.

2. Readership :-

Good academic record with first or high second class Master's Degree in Economics with a Doctor's Degree or equivalent published work

Independent published work (in addition to the published work mentioned above) with at least 5 years' teaching experience in Honours Post-graduate classes essential

3. Lectureships (Other than Law) :-

Essential :-

Consistently good academic record with a First or high Second class (B-) Master's Degree or an equivalent Degree of a foreign University in the subject concerned.

Desirable (in order of preference) :-

i A Doctor's Degree or Evidence of research work of equivalent standard in the subject concerned.

ii Teaching experience of Degree Post-graduate classes.

Provided that if a teacher is not a Ph. D. at the time of his/her appointment and does not qualify himself/herself for the award of a Ph. D. Degree from a recognised University in the subject which is being taught by him/her within the period of five years from the date of his/her appointment or does not give evidence of research work of equal standard within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of five years till such time he/she fulfils the above mentioned requirements.

4. Lectureships in Law :-

Good academic record with a first or a high second class Master's Degree or an equivalent degree of a foreign University in the subject concerned

II. SPECIAL DESIRABLE QUALIFICATIONS FOR

1 Lectureships in Geology

Specialization in any one or more of the following sub-disciplines in Applied Geology ; Hydrogeology ; Geophysical Prospecting ; Mineral Economics ; Mining Geology ; Mineral Fuels ; Photo-geology ; Engineering Geology ; Mineral Dressing

2 Lectureships in Evening Law Centre No I

Specialization or teaching experience in one or more of the following branches Law of Taxation, Labour Laws, Indian Legal and Constitutional History, Law of Property or Public Control of Business

The prescribed application form can be had from the Information Office of the University either personally or by sending a self-addressed envelope (5"x11") with postage stamps worth Rs 2.55

Selected candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview

Application (separate for each post) accompanied by attested copies of Degree, other certificates, published research articles etc. should reach the undersigned not later than 14th August, 1976

NOTE 1 It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation in any of the qualifications may be made in exceptional cases, in respect of all posts on the recommendations of the Selection Committee

2 Canvassing in any form by or on behalf of the candidates will disqualify

3 Candidates from outside Delhi called for interview will be paid contribution towards travel expenses equivalent to 1st single second class Rail Fare

Delhi-110007
19th July, 1976

Registrar
University of
Delhi

UNIVERSITY OF SAUGAR

Advertisement No R. 276

Applications in the prescribed form with detailed information obtainable from the under-signed on requisition accompanied by a self-addressed stamped envelope and a postal order of Rs. 5/- for each post—are invited on or

before 14th August, 1976 for the following posts :-

DEPARTMENT OF PHYSICS

(i) One Post of Professor (Permanent). Scale Rs 1100-50-1300-60-1600 with P.F. & D.A. benefits as per University rules

Qualifications :- (i) A first or second class Master's Degree of an Indian University or an equivalent qualification of a Foreign University in the subject concerned (ii) Either a degree of the Doctorate standard or published work of high standard (iii) Not less than 10 years' experience of post-graduate teaching and experience of successfully guiding research (iv) knowledge of Hindi will be desirable

One Post of Reader (Permanent). Scale Rs 700-50-1250 with P.F. & D.A. benefits as per University rules

Qualifications :- (i), (ii) same as for Professor with post graduate teaching experience of 5 years and 3 years experience of guiding research. Working knowledge of Hindi will be desirable qualification

The above salary scales are likely to be revised, in which case the conditions as prescribed for revised scales will be applicable

The University reserves the right to negotiate with suitable persons who may not have applied

Candidates called for interview will have to come at their own expense

Sd/-
(S.N. Kayeshwar)
Registrar
University of Saugar

SOUTH GUJARAT UNIVERSITY

Hari Om Ashram Prerit Shree Chaudal Vaicram Reshamwala Smarak Trust Award

Applications are invited for "the Hari Om Ashram Prerit Shree Chaudal Vaicram Reshamwala Smarak Trust Award" of the value of Rs. 3500/- to be given to an Indian, for his outstanding original research work or contribution judged from his printed research publications during the last five years i.e. from January, 1971 to December, 1975 in the field of "Oceanology"

Four copies of the application in prescribed forms available from the University Office alongwith four copies of the printed publications of the candidate should reach the Registrar, South Gujarat University, P.B. No. 49 Surat-395 007 (India) on or before 31-8-1976.

Prescribed application forms and rules governing the award will be available from the University Office on payment of Rs 5/- on or before 15-8-1976

G.A. Desai
REGISTRAR

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Editor : ANJNI KUMAR

The Problem of Grading Borderline Marks

A. Edwin Harper, Jr.

Students sometimes object to the conversion of raw scores (or marks) to grades. They say, "I had 123 questions right, and was awarded only a B. My friend had 124 right, and was awarded an A. It is not fair for him to get a higher grade, just for one point." They are, of course, right.

One could equally well argue (though most students would not as readily accept this): "I had 74 marks, and was awarded an A. My friend had 73 marks, and was awarded a B. Did I really deserve a better grade than my friends?"

Actually, when you add up several grades to calculate a Grade point Average (or aggregate grade), the "just above" and "just below" cases will tend to average out. The more grades enter the GPA, the more complete the "averaging out", for almost all of the students.

Still, in terms of the grade for an individual examination, the student does have a point. The fact is that almost all systems of grades, marks, classes, divisions, rankings, orders of merit, etc. are fundamentally deceptive. They imply a much greater degree of precision than is possessed—or ever can be possessed—by any type of educational measurement or assessment.

Is there a solution?

In the case of Divisions or Classes, we "solve" this problem by reporting the marks along with the division or class. The student can then say, "I missed First Class by one mark", or "I missed First Class by one-tenth of one percent". This is somewhat absurd, because he still is labelled for life as a Second Divisioner. The psychological impact of the "Second Class" label is far more potent than that of the number of marks by which he "missed a First". And anyway, this does not solve the fundamental problem which is that the marks themselves (as well as the Classes or Division) are subject to a rather wide margin of error. So to suggest, as some have, that marks as well as grades should be reported is just to perpetuate one of the absurdities of the present marking system into the grading system, thus making no real change at all.

Others try to solve this problem by adding "+" or "-" to a grade to represent the fact that the marks, on which the grade is usually based, are near the borderline. But does this really solve it? No. It again

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implies a greater degree of precision than we are ever justified in assuming, for any educational measurement. Increasing a 5-point grading system to a 15-point system by adding pluses and minuses, is just working back in the direction of the old and discredited 101-point marks system. As you increase the number of different categories, you also increase the percentage of students placed in the *wrong* category. With a 101-point system of marks, very few students are actually awarded the exact mark that they *should* have received, i. e. the "true mark" that would have been awarded by a perfectly reliable examination. With a 5-point grading system, about two-thirds will be awarded their "true grades". Many American universities (including Yale) have adopted a three-point grading system: Superior, Satisfactory, Fail. Here the percentage properly classified is raised to between 80% and 90%. (At the absurd extreme, of course, a one-point grading system would correctly classify 100% of the examinees.)

An honest grading system

The problem, of course, is that we do not know—and we cannot ever know—what the "true mark" or the "true grade" of the student is. If we examined the student 100 times in the same subject, with 100 different examinations and examiners, then the average of his grades would be his "true grade". But this we cannot do. Therefore, we can only *estimate the range within which* his "true grade" probably lies. For the 101 marks system, this is usually within seven marks of the mark actually awarded on a single examination. For a 5-point or 7-point grading system, this is within one-third to one-half of a grade. Thus, if the student's mark is in the middle of the range awarded a grade of B, then his "true grade" is most probably a B. But if it is near the upper borderline, then his "true grade" might be a B, but it also might be an A. We simply do not, and *cannot* know what his "true grade" really is

Does this give a clue to the solution? Yes. For students whose raw marks fall near the borderline between two grades, award *both* grades. Thus those with a high B or a low A are awarded a grade of "AB". In awarding such a grade we are saying to the student, "We honestly do not know if you deserve an A or a B. You *may* be as good as a student awarded an A, or you *may* be not any better than the student awarded a B. The examination is not reliable enough to determine which is true." In my experience (I introduced such a system of grading a test in India thirteen years ago), students appreciate and accept such honesty.

Implementation

You now have a grading system consisting of ; A, AB, B, BC, C, CD, D, DE, E. The bottom one-quarter of the marks considered "A" and the top one-quarter of the marks considered "B" should be awarded "AB." A similar rule applies to each of the

remaining borderlines. The middle half of each grade group is awarded the simple, one-letter A, or B, or C, etc. If you are grading directly, instead of converting marks or raw scores then, as a rough rule of thumb, you may substitute "students" for "marks" in the above formula.

If you add O/E and F to your system as the UGC recommends, these should be reserved for the top and bottom one or two per cent of any large group of students. It is known that at the extremes, the measurement error is extremely small. So grades O/E and F are *not* written in combination with any other grade.

For calculating Grade Point Averages, the borderline grades are counted as half-way between the whole grades. Thus, if the value of A is 5 and the value of B is 4, then AB is 4.5 grade points.

For the technically-minded, who want greater statistical precision, note that this is a 9-point scale (which is extended to an 11-point scale by adding those above and below 2.25 standard deviations from the mean). Thus it is the old, familiar Stanine scale in a new guise. If a test has a reliability of .75, its standard error of measurement is one Stanine. The proposed grading system is based on this fact.

Summary

We have described a grading system which is based on a *realistic recognition of the existence of unavoidable errors of measurement*. It is based on the concept of "confidence bands", which are widely used in scoring aptitude tests. It is a system that is already in use in some colleges, in the U.S.A. and in Nigeria at least. Table I summarizes the grades, the points awarded each, and the percentage of the "normal curve" which would be awarded each grade.

TABLE I

Grade	Point Value	Percentage of Average group*
O/E	6	1%
A	5	3%
AB	4.5	7%
B	4	12%
BC	3.5	17%
C	3	20%
CD	2.5	17%
D	2	12%
DE	1.5	7%
E	1	3%
F	0	1%

*NOTE : If you are grading directly (instead of converting raw scores or marks), and use the suggested "rule of thumb" of considering the top and bottom 1/4 of the students in each grade as being "borderline," you will not come out with exactly this percentage in each grade ; but you will be reasonably close to it.

Financial Management

Budgetary Situation of Universities and its Implications

C. B. Padmanabhan

Large and widening deficits have become the characteristics of several universities situated in different States of India. Central Universities which are receiving both maintenance and plan or development grants from UGC are in a different position and we are not concerned with them in the following pages. The object of this paper is to highlight the budgetary situation of the Universities in different states and analyse the factors that have contributed to them. It is found that in the long run universities should have more resources to undertake many of their activities. But in the short run sound financial management can make a contribution to the improvement in the financial situation of universities.

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Sound financial management consists in the application of managerial techniques to financial administration. Planning and budgeting are important tools of management. They have to be used as such. Further as we hope to show later, accounting at present is only for the purpose of financial control. But the other two aspects of accounting viz. financial and cost accounting are equally important. Since accounting is an important element in the process of budgeting, we have also to consider process of accounting in any discussion of budgeting in universities.

Classification of expenditures

In public finance, 5 basis of classification of expenditure has been recognised. They are the character of expenditure, the origin or the location of the spending unit, the object of expenditure, the functions performed by the expenditure and funds from which expenditure has been incurred. In the present system the Universities follow either the model budget prescribed by UGC for submission to it or budgetary heads evolved by universities themselves. Department of universities or/and colleges occupy an important place as heads of accounts. Since the universities receive funds of different kinds from bodies like UGC, State Governments, students as well as examinations, they are shown under different sections. Thus in Part-I of the budget, the non-plan or maintenance expenditure is recorded. In Part-II, the development funds received from UGC are recorded. In Part III & IV, the expenditure from earmarked funds is recorded and IV contains expenditure on account of debt or deposit funds of transactions.

The above lines have described the approach to budgeting contained in the model budget laid down by the UGC. A look at the budget of many universities shows that they do not follow the model budget.

Rationale underlying the UGC Model Budget

The rationale underlying the Model Budget in so far as one can see it from the prescribed format appears to be the following. Universities receive their funds from various quarters like State Governments, UGC, Student fees. Certain Acts of the universities have laid down that the funds of the universities be contributed in university funds. Therefore, Part I and Part II will be concerned with university funds and UGC funds respectively. Each part will have both receipts and expenditure. Part I is concerned with maintenance expenditure or non-plan expenditure while Part II is concerned with UGC funds meant for development purposes. Part III is concerned with earmarked funds for specific purposes. Part IV is concerned with debts and deposits. Certain universities like Kerala, Poona and Shivaji do not follow the model budget format. Kerala University has the heads of account

for the budget on the basis of activities like general administration, examination or department like Humanities, Sciences etc. or the sources of grants. Shivaji has the budget only in three parts and the fourth part on debts and deposits is not there. It is easy to see why and how these differences in heads of accounts have come into being. They are influenced by the practice and requirements of State Government for the purpose of giving grants. Also the use to which a budget is being put will be a major factor influencing the format. At present budget is used only as a financial document. But under the concept of management, budget is a tool for management. It has a technical dimension which will be concerned with the impact of expenditure on output from the universities and an economic dimension which is concerned with the use of resources for consumption or investment.

But it will be desirable as a first step in budgetary reforms if the universities follow the Model budget format. Not much efforts will be required by universities to recast or present their budgets in the Model format. All the information needed for the purpose is already contained in the existing budget. But we would regard this only as the first step in the budget reforms.

It is well known that in all countries of the world budgets are being looked at entirely with a view to using them as tools of management. In our country, Administrative Reforms Commission of India had suggested that there should be a change over to performance budgeting. Accordingly, in several Ministries of the Government of India and departments of State Governments performance budgets are being prepared and as a transitional measure line item or traditional budgets also are being prepared. We suggest that universities also adopt the same practice.

Under performance budgeting efforts will be made to show in the budget expenditure for a year from three angles, on the basis of the programme and activities on which the expenditure is being incurred, on the basis of the deficits on which they will be spent and on the basis of the sources from which the funds are expected. The fact that universities by their very nature have to adopt different activities or programmes in furtherance of their objectives, the expenditure has to be on salaries, equipment etc. and the fact that they receive finance from different kinds of funds make them eminently suited for the application of performance budgeting.

How to evolve programme and activity classification?

The crux of the problem is the evolved programme and activity classification. It could be as follows : The University has to teach, to research, and has to undertake public services. It has also to provide amenities to students in carrying on their studies and provide them guidance for getting employment. In carrying out the above functions, the university has organised itself into various departments. Therefore, each department has to think in terms of

its objectives and programmes through which it is trying to attain the objectives. Evidently, what a department tries to do will not and cannot be in conflict with goals which the university is trying to achieve. Therefore, there has to be enough discussion between the departments and university in the matter of setting up of objectives, drawing up programmes and evolving such programmes. The heads of accounts in which expenditures are recorded should be more meaningfully related to activities of the universities and their departments. The programmes can be based on activities like Under-graduate courses, Post-graduate courses, Research, Public services. Under each activity, there can be such activities like lecturing, supply of literary books, laboratory equipment etc. Within each sub-activity allocations will be made. Each department will be initially preparing the demand for grants in the above format. As a transitional measure, the format on the basis of activities will be converted into traditional line item budgets.

Yet another important part of the new budget will be an effort to measure the workload as well as the attainments of physical targets in contrast with progress of financial expenditure. With the helps of such workload data and physical measurement of performance it will be possible to compare the expenditure on a unit basis of one university with another and ensure that efficient use is made of the available resources.

It was with the above ends in view that the National Staff College organised in cooperation with the Faculty of Management Studies of Delhi University two training programmes for finance officers of universities in India. In the first training programme from 31st May to 11th June, 24 universities were covered and in the next training programme from 5th July to 15th July another batch of 23 universities was covered. The themes covered in the course were (i) role and responsibilities of finance officers, (ii) higher education in India, (iii) planning for quality in higher education, (iv) system of financial administration in universities in India, (v) panel discussion on role and functions of finance officers, (vi) accounting as a tool in management, (vii) books & accounts maintained in universities, (viii) financial aspects of planning higher education, (ix) financial management--concepts and techniques, (x) cash flow analysis, (xi) budget process in universities, (xii) delegation and control in universities, (xiii) UGC and financing of higher education (xiv) model budgeting, (xv) reforms in budgeting--performance budgeting.

In order to provide sufficient opportunity for participating finance officers to express their views and have the benefit of expert views, there were two panel discussions on Role & Function of Finance Officers and problems of financial administration in Indian Universities. It is our hope that this training will make a contribution to better financial management in Indian universities.

New Education Structure: A Viewpoint

G. S. Mahajani

While delivering the 1976 Dr. Zakir Hussain Memorial Lecture, Nawab Ali Yavar Jung, referring to teachers and students, observed in New Delhi :

"The future of our education at higher secondary and university levels depended not so much on administrators as on the teaching and student communities. He regretted that barring a few 'honourable' exceptions neither had been equal to the responsibilities of the future."

My comment is this : on account of the financial difficulties of all universities, their autonomy is considerably clouded and that the administrators too have not proved equal to their responsibilities.

To illustrate:

2. In response to the country-wide agitation of teachers Associations for improved scale or the running grade, Government did not take the matter seriously to appoint a National Wage Policy Committee for a poor country like ours. Had it been done the salaries in Government and private sectors of all teachers in colleges, schools, primary institutions, also in manufacturing companies and banks should have been rationalised with the aims that the highest should not exceed a certain multiple of the lowest. To this effect, suggestions had been made by enlightened economists (to wit V.M. Dandekar). Instead, the UGC appointed Sen Committee which suggested higher scales for College and University teachers. They were accepted by the Government uncritically. I say uncritically advisedly for two reasons : (a) The State Education Ministers were not at all consulted though, education being a state subject, the increased burden was to fall on the states in future. (b) Secondly, to repeat, no such decision should have been taken in isolation without foreseeing its effects on other sectors of education and economy.

3. Similarly, the administrators failed to give earnest thought to the recommendations of the Education Commission (Kothari). Let me draw attention to three of their recommendations :

- (i) The pre-degree course to be of two years (11th & 12th) instead of one, thus practically reviving, and rightly, the old intermediate examination (which still continues in Bombay University).
- (ii) After the (10+2) intermediate stage to have a three year degree course.
- (iii) Work experience to be incorporated with the syllabus.

4. To implement any central policy & coordinate the efforts in the field of education, the centre takes the help of C.A.B.E., UGC, IUB (now A.I.U.) & State Education Ministries.

(a) I quote now the recommendations of the C.A.B.E. (1973) :—

- (i) At the under-graduate stage, we may have a pass course of two year and an honours Course of three years. This will have several

advantages. In the first place, it will not mean an addition of one year for every student in those states where the first degree is now obtained in a period of 14 years. It will thus reduce the cost involved very substantially. Even in the States where the B.A. degree is now obtained in a period of 15 years, this will make it possible for a large number of students to get their first degree after 14 years, and this will save considerable cost as well as time. Moreover, the introduction of the special honours courses for three years will make it possible to isolate the more competent and better motivated students from the others and help in raising standards, especially at the post-graduate stage. Incidentally, this will make our Honours degree more comparable with the honours degree of Universities in the advanced countries.

- (ii) It should be open to all students who have taken the first degree in the pass course to study privately or through correspondence courses and to appear for the first degree in honours course at any time.

- (iii) Post-graduate course should cover a period of two years after the honours degree.

(b) Next take the UGC. On Jan. 9/10, 1975 UGC wrote to me :—

"The commission (UGC) endorses the view of the C.A.B.E. that where a University desired to have a two-year pass course on the pattern of 10+2+2 years, it could do so but in such cases, adequate provisions should be made available for such graduates who wish to pursue post-graduate studies by offering them suitable 'bridge' or 'link' courses.

(c) And thirdly see what State Level Committee of Maharashtra Government comprising all Vice-Chancellors, recommend in their final report :—

"After careful consideration of the matter and in the light of the discussion which took place at our meetings we recommend that there should be two years' pass course or general course as may be decided by the academic authorities of the universities, and one Year's Honours course subsequent to Pass/General course and that the first two years in the University should be common to the Honours as well as to the Pass/General Course."

5. What have the administrators done? They completely ignored the suggested pattern of 10+2+(2+1) which was recommended by the three, in all their communications. And they still speak of only 10+2+3.

6. What should have been done was to detach the 1st year of T.D.C. and attach it to the present pre-degree course of one year and thus implement Education Commission's recommendation to make and revive the intermediate examination as a *junction*

point. The remaining 2nd and 3rd years of the TDC will make 2 year-pass (or general) Course of first degree. Bombay University has this pattern. And as recommended by the Maharashtra State Level Committee, add a third year to the pass course to make honours course.

The three year honours degree is = Part I of M.A. or M.Sc. and after another year one can get the M.A. or M.Sc. degree in 16 years i.e. six years after the matric.

For the Ph.D. course there should be three years. The first year being devoted to getting acquainted with research methodology and courses relevant to the thesis to be pursued during the 2nd and 3rd year of Ph.D.

7. According to the above, 11th 12th years will be spent in colleges, as they now are, no question of additional grants for library and laboratory.

8. The transfer of 11th and 12th or even only the 11th to schools means expenditure for library, laboratory and additional classrooms.

In having a pass degree in 14 years instead of fifteen, the following considerations are valid.

(a) Even today only about 15% or so go for post-graduate studies. There is no point in adding one more year in the case of the 85% who are content with general degree. Neither the parents nor the country can afford this extra cost.

(b) There is nothing odd in having 2 years for pass and 3 for honours. Even now the law faculty has a degree after two years called general degree and three years professional degree for legal practice.

(c) There is hardly any gain in asking a prospective law student to have an honours B.A. of 3 years.

(d) For the UPSC exams. for central services, only a pass degree is now sufficient. Why raise the age of the candidates by the provision of a degree of three years? The same applies to NCC 'C' certificate holders going for IMA.

9. If we study the 21 reports of the Carnegie Commission on higher education for the next 25 years, the following facts emerge.

- (i) Post-matric two years are spent in two year junior colleges.
- (ii) There is a degree A.A. or A.Sc. given by the University after the two years (Intermediate).
- (iii) Junior Colleges form part of the university system.
- (iv) The courses provided by junior colleges are varied to suit entrants of different likes and aptitudes. And therefore everyone does well. According to Sir Eric Ashby, more students means more varied courses not worse standards.
- (v) The admission to four year degree colleges is selective.

10. It appears to us that a network of junior colleges—including polytechnics if integrated with junior colleges, will meet the problems of explosion of numbers and maintaining standards, by providing technical and terminal courses.

11. Our state was confronted with two problems simultaneously, viz.

- (i) To compress the present 11 year matric

course into 10 years, as obtains all over the country.

- (ii) To implement the formula $10+2+3$.

I have dealt with (2). Let me now isolate (1) and suggest what could have been done.

By abolishing 11th class, some teachers will be rendered surplus. We can increase the number of divisions in 9th and 10th classes, by reducing the strength of each and absorbing the surplus teachers. As time progresses, in their increased number of divisions, full strength will be attained. This has two advantages; you need not cause unemployment and even if temporarily there is expenditure it will be balanced by higher efficiency reached by reduced strengths of divisions.

12. As, however, the two problems have come together, two streams will flock to colleges. To accommodate them during the transitory period we can have two shifts in each college.

13. As in the U.S., as recommended by the Carnegie Commission the junior colleges must be a part of the university system and there is no reason to give lower scales to their teachers.

14. Incidentally, I venture to point out how the financial position of all universities in the country can be put on a sound basis.

Abolish all secondary boards. And let the control of all schools situated in the jurisdiction of a university be handed over to it. The university will conduct the matriculation of those schools. The fees realised will ease university position in finance.

After all it is a matter of history that when Bombay University conducted the matriculation, its finances were sound.

Another important advantage will be that the numbers at the matriculation examination in each university will be manageable.

15. Let us realize that the nature of our conventional universities has changed from Newman's conception (1852) of a university producing gentlemen—scholars, who could in his time fit into any public office, through Flexner's emphasis (1930) on the research aspect down to the modern multiversity concept of Clark Kerr (1962) the facets of higher (post-high school) education have vastly increased. Further, whatever criticism people may advance against universities, they do desire to have the university stamp of certification.

It is to meet this double need that junior colleges, with universal access and many varied courses to suit all aptitudes, will be the order of the day in future.

16. Lastly, consider the Education Commission's recommendation to incorporate work experience in the academic syllabus.

The best way to implement this idea is to adopt, as in U.S. and U.S.S.R. a five day week for instruction and lectures. Sunday being a complete holiday, the sixth day, called "field day" to be devoted to N.C.C., N.S.S., N.S.O. and all activities of work-experience including hobbies.

Convocations

Dr. Rangaswami addresses Gujarat Convocation

The third annual convocation of Gujarat Agricultural University was held at Anand campus this year. Dr. G. Rangaswami, Vice-Chancellor, Tamil Nadu Agricultural University, in his convocation address said that the scientists working in the colleges, research stations and training centres could legitimately take credit for the 'Green' and 'White' revolution in the State. The present system of education and employment had drastically disrupted the age-old equilibrium in the rural society as there was continuous brain drain from our villages. It had created educated unemployment in urban areas. He said that 8000 graduates pass out from agricultural universities every year but they are unable to get suitable jobs. We train more lawyers than agricultural graduates even though nearly three-fourths of the people are dependant on agriculture. This anomaly must come to an end. The agricultural universities had been set up to bring benefits to the rural people and we should contribute towards rural development and we must understand their problems. Dr. Rangaswami said that the integration of land holding has to some extent disrupted the agricultural advancement as farmers holding small plot of lands were harvesting only a few kilos of foodgrain. If we were to intensify our efforts towards adoption of latest scientific technology in farming we need to prevent disintegration of land holdings below certain levels. Short and untimely supplies of inputs and their high cost and non-availability of electric power during summer months and fluctuation in the prices of agricultural products are some of the problems of the rural masses which need the proper attention of the aca-

demicians and agricultural scientists

Dr. Rangaswami commended the research work undertaken by university scientists in hybrid cotton and bajra, tobacco and dairy technology which has brought rich benefits not only to the farmers of Gujarat State but also to those of other States. He especially stressed the achievements in dairy husbandry. 'Anand' has contributed to the dairy industry in a significant way and this model dairy development is now being followed in many parts of the world.

Shri V R Mehta, Vice-Chan-

cellor, in his annual report pleaded with the research scientists to intensify their work and to undertake the deeper and more penetrating research to raise living standard of millions of people who still live below poverty line. Since the inception of the university its role in areas of agriculture and allied fields have been identified and an imaginative planning has been made. The university has undertaken projects and programmes in relevant and strategic areas. A livestock research station has been set up for research in arid and semi-arid zonal problems. The Krishi Vigyan Kendra would further strengthen the activities and would provide a network for comprehensive programme for upliftment of the poorer section of the society.

Ujjain honours a journalist

A special convocation of Vikram University, Ujjain, was held to honour the noted journalist, Mr. Mahavir Adhikari, Editor, Navabharat, Times, Bombay. A degree of Doctor of Letters (Honoris Causa) was conferred on him. The eminent Hindi author, Mr. Ganesh Datta Sharma was also conferred the Degree of Doctor of Letters.

Dr. Shiv Mangal Singh 'Suman' while conferring the degree said that the university felt happy and proud in admitting the eminent journalist and author to its family.

Prof. Satish Chandra, Chairman, UGC, was the Chief Guest. In his special convocation address, he referred to the Indian system of higher education which has proved quite useful in changing the traditional orthodox beliefs as a result of which we have been able to understand the requirements of modern life and the complexities of international life. He said that eight-fold increase had taken place in the registration of students for higher education

during the last 28 years. There were about nine crore students in the country out of whom about 34 lakhs were receiving higher education. There were 111 universities and institutes of university level with 4000 affiliated colleges employing 1.25 lakh teachers in the country. One-fourth of the national budget amounting to Rs. 157 crores was spent every year on education.

Prof. Chandra remarked that higher education was not confined only to a handful of elite families, but was available to the city dwellers and to a certain extent to the rural people also. Many research institutes of high standards had been set up in the country. Their standards were in no way less than the international standards. The products of these very institutes had given great fillip to our agriculture, secured capability in atomic science and were now on the doorstep of space research. We are in a position to impart education in the fields of science, technology and medicine to our many friendly countries of Asia, and Africa

Madurai Workshop on Grading

Shri S.V. Chittibabu, Vice-Chancellor, Madurai University inaugurated the two-day workshop on Grading, Internal Assessment and Question-Banking for the teachers handling post-graduate courses in the colleges of the Madurai and Ramanathapuram districts and in the University departments recently. He underscored the need for introducing the grading system as a concomitant to the semester system and stated that the University had accepted in principle the adoption of grading system in place of the present marking system for the students who will be joining the post-graduate courses in arts, science and commerce from the academic year 1976-77. He mentioned that this step was being taken in the hope that all the South Indian Universities would adopt this system pretty soon. He referred to the workshop organised by the Madras University at the instance of the

The Vice-Chancellor pointing out the inherent defects of the marking system cited illustrations which exposed the vagaries of the valuation by examiners who could not help being influenced by subjective considerations while awarding raw marks. Error in marking ranging over 5% was not uncommon under the marking system. There was no internal coherence because of combining marks in different subjects and different papers. Even the cut off points used for the divisions were more often purely arbitrary thereby proving the unreliability of valuation based on marks.

The proposed grading system, the Vice-Chancellor claimed, would eliminate to a very large extent, the idiosyncracies of examiners, mitigate mass copying in as much as only a limited number would be placed within each ability based position and distinguish meaningfully the good from the bad and the indifferent.

He called upon the participants to discuss frankly and in

member of the Syndicate welcomed the Vice-Chancellor, Shri V. Natarajan, resource person from Association of Indian Universities and the participants and stated that the introduction of the grading system in the University was yet another important step taken by the University in the matter of reforming the examination system.

Shri V. Natarajan explained the principles and mechanics of the grading system and stated that in the course of the two day workshop there would be group discussions on grading, besides exercises in marking, grading etc. The question of designing the scheme of internal assessment and restructuring of question papers and other problems connected with the grading would also be discussed threadbare.

A similar two-day workshop was held at Palayamkottai at St. Xavier's College for the post-graduate teachers in colleges in the districts of Tirunelveli and Kanyakumari.

CAMPUS NEWS

University Grants Commission in December 1975 in Madras at which it was resolved that for the success of the grading system, all Universities of the southern zone should act in concert and put through the scheme with due planning and preparation.

The Vice-Chancellor explained how the grading system was not new to either Madras or Madurai Universities and that as early as 1957 grading system was introduced. After some time it was decided to go back to the marking system because of difficulties arising in the wake of not all the Universities pulling together in implementing the grading system and the appointing authorities pressing for statements of actual marks for selection of candidates.

depth the basic objectives of the grading system, the suitability of the scale to be adopted, the mechanics of converting marks into the grades if felt necessary in the early stages, and the interpretation of the grades and the grade point average.

In conclusion, the Vice-Chancellor, appealed to the participating teachers to get the best out of the workshop by contributing their thoughts, views and ideas in the light of past experience and the challenging demands that grading involved and initiate the new experiment with determination, faith and dedication so that the present old order of the examination might give place for the new orders of the evaluation.

Earlier, Dr. M.A. Thangaraj, Principal, American College and

Pantnagar initiates National Development Programmes

In implementation of Union Finance Minister's proposal regarding integrated rural development, the G.B. Pant University of Agriculture and Technology has formulated an action plan for the integrated development of Nainital district. The cornerstone of this programme is the socio-economic uplift of the poor, particularly in the rural areas. It involves creation of opportunities for full employment of the labour, establishment of agro-industrial complexes, increase in agricultural productivity, land reform, establishment of community nurseries, water management, pest control, fish culture, post-harvest technology, health and family planning, development of energy resources and creation of proper marketing facilities. The programme opens up opportunities for attempting a balanced and integrated pattern of resource use.

The university has also organised this year national social service camps in remote hill areas of Pithoragarh and Almora districts during the summer vacation. The first camp was held in Pithoragarh and was attended by agriculture and veterinary students. During the period of 15 days the students took up the construction and repair of the irrigation channels, tree plantation, village cleanliness, weed eradication and composting, collection of soil samples, participation in agricultural operations, treatment of animals and cleaning of cattle sheds, etc. The students also explained and demonstrated agricultural and livestock production practices and educated the village people about eradication of social evils like dowry, drinking, smoking and casteism. Efforts were made to secure maximum participation of the local people in the various projects of the camp.

Pantnagar is one of the few universities in the country which runs social service as part of its curriculum. There is a three-credit programme for undergraduate students who take up the work in neighbouring villages. During the current academic session weed eradication and rat eradication programmes were also organised. Students have already planted about 10,000 fruit trees as part of the national social service programme.

Postal Courses for BEd & MPhil

The Academic Council of Bombay University which met recently decided to institute correspondence courses for the BEd and M. Phil degrees.

The BEd degree correspondence course will be open to the graduates of Bombay University or of any other university recognised as equivalent thereto, who are teachers in colleges affiliated to Bombay University or to other universities in Maharashtra.

Even graduates who are teachers in junior colleges of higher secondary schools recog-

nised by the Maharashtra State Board of Secondary Education which run standard XI and XII classes would be eligible for this course.

Teachers who are graduates in the secondary schools or higher secondary schools recognised by the Directorate of Education, Goa, Daman and Diu could also be admitted.

The M.Phil degree course will be open only to those who have passed the Master's degree examination of Bombay University or an examination recognised as equivalent thereto at least in second class. The course will be full time and the duration will be two academic terms. There would also be a part-time course extending over three academic terms. The Academic Council also decided that the students who have passed the Indian School Certificate Examination will be eligible for admission to the first-year class of the 3-year degree course in the faculties of Arts, Science and Commerce from June, 1977.

New P.G. Correspondence Courses

The Panjab University is starting postgraduate courses through correspondence in the subjects of English, Political Science, Economics, History and Public Administration from the session 1976-77. The postgraduate teaching departments of the university will have an active academic involvement in the starting of these courses. In addition to the faculty of the Directorate of Correspondence Courses, the academic resources of the staff would be fully utilised in running these courses.

The Directorate has been successfully running for the past five years degree courses in Arts and Commerce and a job-oriented diploma course. The University Grants Commission has agreed to provide a recurrent grant of Rs. 1 lac per subject per year for a period of five years for starting these courses.

The institution of these courses will tremendously benefit the old

graduates of the university who for want of post-graduate colleges, except in major towns, have been stagnating and could not better their qualifications. This course will also look to the needs of the students scattered all over the country and Indian nations abroad though a regular despatch of standard guideline scripts, which will include source material, text discussion, excerpts from standard books and journals, bibliography and recommendations for further study in addition to media aids including radio-talks.

In order to impart professional education through the medium of correspondence, the Directorate is also starting a one-year certificate course in Library Science. It aims at giving elementary training to such persons who can work at the junior levels, especially in the small libraries. This will provide impetus to the library movement in second level urban centres and rural areas. The course will be open to persons having passed the Higher Secondary/Pre-University examination in second division.

The Directorate has a well stacked library on its campus. With emphasis on source material, text and reference sections, this library is self-sufficient unit catering to the needs of the teachers and students. To take the library to the door-step of the student, postal library service is being introduced from this year. Library cum-Guided Study Centres are being started at Jullundur, Ludhiana, Karnal, Hissar, Delhi, Madras and Bangalore, places of maximum student's concentration. Each centre shall not only have library facilities, for textbooks and reference material but also have qualified part-time teacher-counsellor so as to advise the students on the course material and to resolve their individual difficulties.

In pursuance of the philosophy of correspondence education which envisages the university to transcend its physical and territorial limits the Guided Study Centres will be a vital link in a chain of 'education cells' working in the midst of the community.

Consortium for Science publications

Dr. R. C. Hiremath, Vice-Chancellor, Karnatak University, while inaugurating the two-day seminar of the publishers of the South Indian Universities representatives suggested the formation of a consortium of the Indian Universities to promote the sale of their publications. He regretted the failure of educationists to make available the latest scientific literature to the people. He said that the literature produced by universities which was as good as published by private publishers had failed to find an encouraging market. Listing the problems that had slackened the sale of universities publications, Dr. Hiremath hoped that his idea of consortium could find solutions to them. He hoped with the consortium a beginning would be made towards self-sufficiency to treat authors with greater courtesy and make publication units more useful than what they were now. This would also help the universities to expose scholars and students to the latest serious literature.

Gujarat Krishi Kendra established

The Gujarat Agricultural University has established a Krishi Vigyan Kendra, the first of its kind in Gujarat with a view to impart short-term training to the farmers of the State. The Kendra has been set up at a cost of Rs. 10 lakhs. Farmers camps have been organised and short-term training courses covering soils and soil fertility management and water conservation, irrigation and drainage, manure and fertilisers, dry land farming, seed production technology, crop production, plant protection and equipments, farm power machinery, pump and irrigation equipments, animal hygiene, dairy and poultry production, sheep and goat protection, food preservation, gobar gas plant, wind mill and solar heater, would be organised during the year.

The university has also proposed to run a three-month train-

ing course in soil health care for science graduates. The unique feature of the programme is that after the completion of the course each of the trainees will be given a soil test minikit so that they can go in the surrounding villages to advise the farmers on their soil and make recommendations based on tests. The Indian Council of Agricultural Research has provided the university sufficient grant for this purpose.

M. Phil in Panjab Varsity

The Panjab University would soon start M.Phil courses in eleven subjects from the current academic session. These subjects are : Anthropology Botany, Economics, English, Geography, Geology, Mathematics, Political Science, Public Administration, Punjabi and Zoology.

JNU Organises Russian language Course

The Jawaharlal Nehru University will organise an intensive course in the Russian language for Indian space scientists working with the Russian in the space research programme. The request for this course has been made by the Indian Space Research Organisation, Bangalore. Fluency in Russian will help Indian space scientists to communicate directly with their Russian counterparts without the aid of interpreters. The Indo-Soviet space cooperation gathered momentum during the Aryabhata satellite project. The two countries are now collaborating on another satellite for earth observation.

Students to be nominated to Senates

The Chancellor of Universities in Karnataka, in consultation with the Vice-Chancellors, will nominate student representatives in the Senates for the first three years, according to ordinance promulgated by the Government. The Ordinance has amended the university Acts which had provided for the election of student representatives. This step has been taken

to overcome difficulties in organising elections at short notice. The ordinance has also extended the time limit for the constitution of other authorities like Senate, Syndicate and Academic Council by three months.

ISI Delhi Campus

The Delhi campus of the Indian Statistical Institute was inaugurated by the Prime Minister on 31st December, 1974. The campus has a office building, library, auditorium and classrooms and hostels for students, scholars and visiting professors. It is built on a 18-acre plot in the institutional complex of the DDA near the Department of Science and Technology. The institute provides academic programmes for students leading to Master's and Ph. D programme in Mathematics, Statistics and Economics. Besides research in these areas the institute has Statistical Quality Control Division which offers service and consultation to industrial establishments and also provides training to the factory personnel at different levels from managers to technicians in the application of quality control techniques in industry.

In its first phase of landscaping programme, the institute proposes to plant about 500 trees. The staff and students propose to complete the entire project during the present monsoon season. A tree has already been planted by the Prime Minister and Academician Kapitzka and other visiting scientists.

ICUAE new President

Dr. Amrik Singh, Secretary, Association of Indian Universities, has been elected President of the International Congress of University Adult Education for the next quinquennium at its Third Congress held in Ghana in July, 1976.

ISM's Golden Jubilee Celebrations

The Department of Engineering and Mining Machinery of the Indian School of Mines, Dhanbad, on the occasion of the golden jubilee of the School, will hold a national seminar on 'Instrumentation and Automation in Mining Industry' on 1st and 2nd of November, 1976. Leading organisations like 'Coal India Ltd., Central Mine Planning and Design Institute, Central Mining Research Station, etc. and important manufacturers in the field of Mining Machinery are expected to participate in the seminar.

An exhibition of Mining Instruments and Equipments will also be held concurrently with the seminar. The themes of the seminar would be: Control aspects of Heavy Mining Machinery, Monitoring Instruments, Coal Washery Instrumentation and process Control, Communication and Signalling in Mines, Special Safety Features for Circuit Designs, Non-Destructive Testing, Remote Sensing.

Dibrugarh University Endowments

The Dibrugarh University received two endowments totalling over Rs. 18,000 from two benevolent persons for award of scholarship and gold medal from their annual income.

One endowment of Rs. 12,600 was made by Sri Praneswar Pathak of J. B. College, Jorhat for award of a scholarship of Rs. 50 to the candidate securing highest marks in Logic in the Pre-Degree course every year. It will be known as 'Bani Pathak Memorial Scholarship' instituted in the memory of his wife.

The other endowment of Rs. 5,500 was offered by Sri Parimal Dutta of Oil India Ltd., and his brothers and sisters. It will be for the award of a gold medal to the candidate securing first class in MSc (Math) of the university. It will be known as 'Parasuram Gold Medal' after the name of their late father.

Madras starts P.G. Courses in Tamil

For the first time, there will be a Tamil stream in the post-graduate courses from the next academic year with the introduction of Tamil in the M.A. History discipline. Dr. Malcolm S. Adiseshiah, Vice-Chancellor of Madras University, has suggested that in the following year 1978-79, Politics M.A. would also get into the stream with Tamil as the medium, followed in successive years by Philosophy, Economics, Psychology and Geography, Commerce and in 1982-83 Sociology and Anthropology. But before the introduction of these courses, good reference books in Tamil and translations of the best books in English and French are urgently needed. Steps have already been taken by the university to get these books translated as early as possible.

The introduction of the Tamil stream in PG courses will be one of the many far-reaching changes proposed by the University.

As per the suggestion to effect rural orientation of the first degree courses in BSc Botany, Chemistry and Horticulture or Zoology, Chemistry and Fisheries or Botany, Chemistry and Soil Science would be given a trial. In BA, BCom courses it is proposed to have Economics, Commerce and Agricultural Marketing or Economics, Commerce and Farm Management as additional subjects.

A committee under the chairmanship of Mr. Govind Swaminathan has been constituted to examine and review the examination systems, courses and curriculum of the two Law Colleges at Madras and Pondicherry. The university also proposes to introduce Defence Studies in BA degree course besides making preparation for MA course in Defence Studies. The Madras University would be first to introduce Defence Studies as a subject in collegiate courses.

U.P. decides to raise fees

The Government of Uttar Pradesh has decided to raise the tuition

fees in universities and degree colleges by about 50% from the coming academic session. A student of graduate or post-graduate class would be required to pay about Rs. 172 instead of about Rs. 124 as various fees other than tuition fees. In universities and degree colleges the Government has also increased the laboratory fee by Re. 1 library fee by Re. 1 to 3, development fee by Rs. 5, home examination fee by Re. 1 and admission fee by 50%. The increase in the annual examination fee ranges from Rs. 5 to Rs. 15 for various classes.

The increase in the DA fees is of Rs. 1.50 in universities and of 0.50 p. in degree colleges. The tuition and other fees in universities have not been revised for the last 30 years. During this period the pay scales of teaching and non-teaching staff in degree colleges have however been revised several times. This raise in fees will help to some extent.

GURU NANAK DEV UNIVERSITY, AMRITSAR

Advertisement No. 16-76.

Applications are invited for the posts of Lecturers in Economics in grade of Rs. 700-40-110/-50-1600 plus allowances admissible under University rules, on prescribed form obtainable (free of cost) from office of Registrar, Guru Nanak Dev University, Amritsar by making written request accompanied by self addressed stamped envelope of 23 x 10 cms. so as to reach this office by 13th August, 1976 alongwith postal order (s) for Rs. 7.50 drawn in favour of Registrar, Guru Nanak Dev University, Amritsar. Higher starting pay may be given to highly qualified candidates.

QUALIFICATIONS : (i) Consistently good academic record with 1st or high 2nd class (B+) Master's degree in a relevant subject or equivalent degree of a foreign University (ii) Either degree of Ph. D. or an equivalent research degree or published research work of high standard (iii) Teaching/research experience will be an additional qualification ; (iv) Knowledge of Punjabi and a foreign language other than English will be an additional qualification.

SPECIALIZATIONS : (i) In Micro-economic Theory and good mathematical background. (ii) In Economic Statistics, preferably with background in econometrics and ability to assist the School in its research.

Bharpur Singh
REGISTRAR

Madras Examination Reform Unit

The Madras University would soon establish a full time unit for examination reforms. Dr. Malcolm S. Adiseshiah, Vice-Chancellor of the university is keen that the unit keeps a close watch on the results of the internal assessment to be introduced in colleges coming under the semester system pattern from this academic session. The university would also ensure that there is no abuse of the system. The unit would function as a watch dog and will correct the erring teachers.

The university has also accepted in principle the suggestion that question papers for external examination should be set by the teachers. They were setting up question banks. The system of giving choices will also be abolished in the new scheme. The internal assessment was a means of not only evaluating the students' learning achievements alone but also the teachers' teaching capacity and study. The success of the system depended on their sense of integrity and honesty. He was happy that the students who were opposed to the system were now in favour of it. He wanted to increase the percentage for internal assessment from 25 to 30 per cent in the coming academic year. The method of converting marks into grades would now remove the discrimination existing between Social Sciences and Mathematics. Dr. Adiseshiah said that there was a good atmosphere for introducing reforms in higher education and it was for the faculty to take advantage of the prevailing situation in the universities.

Academic Awards and Honours

Dr. Gurdev Singh Gosal, Professor and Head of the Department of Geography, Panjab University has been invited by the Secretary-General of the International Geographical Union to chair the session dealing with "problems relating to population growth and migration at the 23rd

International Geographical Congress to be held at Moscow in August.

Dr. Harkishan Singh of the Department of Pharmaceutical Sciences, Panjab University has been conferred the 1975 Award of Shri Amrut Mody Research Foundation. The award is made in drug research in the country and carries a prize of Rs. 10 000/- The work of Prof. Singh has led to the evolution of some new azasteroidal systems, which have novel and unusual chemical aspects.

Training Programme for Finance Officers of Universities in Financial Management

At the instance of the University Grants Commission and Association of Indian Universities the National Staff College organised in collaboration with Faculty of Management Studies, Delhi University, two training programmes in Financial Management for Finance Officers of Universities from different States of India. In order to keep the size of participants within manageable limits, the programme was organised in two batches. The first batch with Finance Officers from 24 universities was at National Staff College from the 31st May to 12th June and the second batch with Finance Officers from 23 universities participated in the programme from the 5th July to 15th July, 1976. Dr. Ajit Mazoomdar, Secretary (Expenditure), Government of India, inaugurated the first programme and its valedictory address was given by Shri K.N. Channa, Secretary, Union Ministry of Education & S.W.

The second training programme was inaugurated by Prof. Satish Chandra, Chairman, U.G.C. and the valedictory address was given by Dr. Sankar Ghose, Union Minister for Planning, Government of India.

The programme included lectures and panel discussion on the following themes ;

(i) Role and responsibilities of Finance Officers, (ii) Higher Education in India, (iii) Planning for Quality in Higher Education, (iv) System of financial administration in universities in India, (v) Panel discussion on role and function of Finance Officers, (vi) Accounting as a tool in Management, (vii) Books & Accounts maintained in universities, (viii) Financial aspects of planning Higher Education, (ix) Grants-in-aid by State Governments to universities, (x) Financial Management—concepts and techniques (xi) Cash flow Analysis, (xii) Budgetary Process in Universities (xiii) Delegation and Control in universities, (xiv) UGC and Financing of Higher Education, (xv) Model Budgeting, (xvi) Reforms in Budgeting, performance Budgeting.

Besides a practical exercise on Cash Flow analysis, participants were made thoroughly familiar with the 'model budget' which UGC wants to be brought into use by all Universities. Reports were prepared for both the programmes in cooperation with the participating Finance Officers and these have been sent to the Vice-Chancellors of participating universities.

The NSC proposes to organise further programmes for Finance Officers of Universities early in 1977.

Period	SUBSCRIPTION RATES	
	Inland	Abroad
	(Rs.)	Surface (Rs.) Air (Rs.)
1 year	12 00	60.00 100.00
2 years	22 00	110 00 180.00
3 years	33.00	160.00 260.00
5 years	52 00	260.00 440.00
Single copy	1.25	5.50 10.00

The journal is mailed on 7th/8th of every month

Stemming the brain-drain

The brain drain—the migration of trained manpower from developing to developed countries in search of higher incomes and better employment opportunities is perhaps the most damaging aspect of a general employment problem for the poorer countries.

The numbers involved in the brain drain are startlingly large. Between 1962 and 1972 nearly a quarter of a million professionals migrated from the Third-World to Western industrial countries—more than half the total went to the USA, Britain and Canada.

In the USA between a quarter and a half of the annual increase in doctors are immigrants from developing countries. In Britain the National Health Service, which itself loses many doctors to the USA, would probably collapse without nurses and doctors from the Third World.

The loss of manpower involved in the brain drain can be harsh. India, between 1961 and 1964, was losing one in five of her medical graduates. In 1970 the Philippines lost about half the annual output of trained nurses, and in 1961 Thailand lost 67 per cent of its medical graduates.

The causes of the brain drain are complex and can best be understood from a single country's experience. India, like many Third-World countries in colonial days, had a tradition of sending graduates to the colonial power for higher training, and the tradition persisted after independence. After the Second World War it became almost compulsory for an ambitious doctor, engineer or scientist to go abroad for more specialised training and practical experience.

At that stage some higher degrees were unobtainable in India, many specialities were offered only in the West. One official committee discovered that 12 per cent of the annual output of science graduates were going abroad, along with 25 per cent of the engineers and 30 per cent of the doctors.

Migration for further training can be actually beneficial, provided the migrant returns before too long. But India, like every developing country, has at times overproduced certain categories of specialist: for example, engineers in the late 1960s or doctors in the mid 1970s. "Overproduction" means simply that more qualified personnel are produced than there are suitable job openings for. This is an inevitable result of the difficulty of predicting manpower needs five or ten years ahead, and of tying in university recruitment to these needs. "Surplus" graduates solve their own employment problem by migrating to where the work is. Many settle down in the new country permanently.

Without draconian measures, the brain drain cannot be halted outright. But it can be slowed considerably by the right kind of incentives to stay or return. As early as 1959, India introduced a scheme to help "brains" to drain back into their own country. To solve the initial problem of getting a job in India from several thousand miles away, a Scientists' Pool was set up which provided temporary jobs with an acceptable salary, until the returnee could find a permanent post. Some 10,000 talented migrants have been able to return to India this way.

Another Indian scheme provides bank loans to unemployed graduates to set up small businesses—and hence prevents them from taking their skills abroad. Finally, the gradual improvement of facilities at Indian universities, and the expansion of Indian industry, are ensuring that no one will have to go abroad for lack of the right equipment courses or careers in India.

But the industrialised countries can also help to halt the brain. They could better gear their own educational systems to their manpower needs, so they do not have to rely on the talent of the Third World to fill the gaps. The common policy of giving preference to professionals in immigration quotas could also be phased out.

Classified Adverts

(Contd. from P. 26)

candidates. The matter regarding revision of the above pay-scales is under consideration of the University.

4. If the candidates are not found suitable for a higher post they can be considered for appointment on the lower post.

5. Reservation for Scheduled Castes and Scheduled Tribes will be 15% & 18% respectively.

6. Applications should be made on the prescribed form (in 8 copies) obtainable from the University Office on payment of R. 3/- (Rupees three only) in the shape of a crossed Indian Postal Order, Demand Draft payable to the Registrar, University of Indore, Indore-1 (Cheques will not be accepted).

7. The application (in 8 copies) duly filled in and accompanied with Crossed Indian Postal Order of Rs. 10/- for the posts of Professor/Reader and Rs. 5/- for the post of Lecturers should reach the undersigned on or before 15th September, 1976. The envelope containing application forms should be marked "Application for the post of Professor/Reader, Lecturer in the Department of

8. Candidates already in service should apply through proper channel. Applications received after the due date will not be considered. Those who have applied for the post of Lecturer in the Department of Mathematics in response to the previous advertisement dated 23.8.75 need not apply again but only intimate whether their applications be considered.

9. Candidates selected for interview will be required to travel at their own expenses.

10. The University reserves the right to fill up or not to fill up the posts advertised and or to call only selected candidates for interview.

A. G. Sharma
REGISTRAR

SPORTS TALENT SCHOLARSHIPS NSO-1976-77

SECRETARY, ASSOCIATION
OF INDIAN UNIVERSITIES,
Rouse Avenue, New Delhi-
110002 invites applications so
as to reach him by 15-9-1976
for the award of fresh Sports
Talent Scholarships for 1976-77
and for renewal of the scholarships
awarded for 1975-76 on the pre-
scribed application forms available
from the Registrars / Sports
Officers of the member universi-
ties and this Office. Only applica-
tions complete and routed through
proper channel will be entertained.

INDIAN SCHOOL OF MINES

DHANBAD-826004

Advertisement No. 420030/76

Dated July 28, 1976

ANNOUNCEMENT OF FACULTY POSITIONS

The following vacancies exist at the Indian School of Mines—a 'deemed University' under the University Grants Commission Act., 1956. All vacancies are either permanent or likely to become permanent—unless otherwise specified.

The School conducts a five-year integrated programme leading to the award of BTech degree in Mining Engineering and Petroleum Engineering, and MSc Degrees in Applied Geology and Applied Geophysics. At the Master's degree level in engineering discipline, it conducts a two year industry-oriented MTech programme in Mining Engineering in several topics including Mine Planning and Design and has started a similar programme in Opencast Mining with effect from 1975-76. A 3-year part-time MTech programme in Coal Mining Machinery has also been started in January 1976. Three one-year post-graduate programmes will be started in 1976-77 : an M Sc (Tech) programme in Mineral Exploration, and MSc (Tech) programme in Mining Geophysics and a DISM programme in Fuel Technology. The School has on its roll 40 research scholars and fellows working for its own MSc and Ph D. degree in various disciplines, and has been approved as a QIP Centre for MTech/PhD in Mining Engineering.

The School has an ambitious programme of continuing education tailored to meet the needs of the mineral industries. A Centre for Study in Mine System Design is being set up at the School and the setting-up of a Centre of Studies in Ore Deposits has been approved by NCST. The School has an approved scheme of institutional consultancy and has developed a highly purposeful role in the R & D field.

GENERAL JOB DESCRIPTION :

Teaching undergraduate and post-graduate students ; guiding research scholars ; preparation and regular updating of course material, etc. Faculty members are expected to participate fully in the School's other curricular and co-curricular activities and to identify themselves with its corporate objectives.

PAY SCALES :

Professor : Rs. 1500-60-1800-100-2000-125/2-2500

Asstt Professor : Rs. 1200-50-1300-60-1900

Lecturer : Rs. 700-40-1100 50-1600

Besides pay, ISM employees get allowances as admissible to Central Government employees. The total emoluments at the Rs. 1500/- stage currently come to Rs. 1743/-. at Rs 1200 - stage to Rs. 1543/- and at Rs. 700/- stage to Rs. 889/-. Higher initial start may be granted to specially qualified and experienced candidates.

Age : Normally not more than 50 years for the post of Professor, 40 years for Asstt Professor and 35 years for Lecturer. Upper age limit relaxable by five years in respect of (i) candidates belonging to Scheduled Castes/Tribes (ii) displaced goldsmiths and (iii) displaced persons from Bangladesh (the erstwhile East Pakistan) who had migrated to India on or before 1-1-1964.

Experience in teaching, research or industry (including technical and scientific organizations) for ten years in case of post of Professor (including at least five years in position of high responsibility), six years in case of post of Assistant Professor (including three years in position of responsibility) and two years in case of post of Lecturer. Candidates must have specialised knowledge/experience in the specified speciality.

In case of post of Lecturer, persons with lesser qualifications/experience may be considered but, if selected, would earn their first increment a year after the completion of two years experience: their probation period would also be counted only from the date on which they acquire the prescribed length of experience and/or the prescribed qualifications, whichever is later.

1. One Professor of Mineral Beneficiation in the Department of Chemistry, Fuel and Metallurgy.

QUALIFICATIONS :

- (a) A degree in Metallurgy, Mining or Mechanical engineering or equivalent (Essential but relaxable for those holding Ph.D. in Chemistry).
- (b) A post-graduate degree in Mineral Beneficiation (or equivalent) or a doctorate degree in Chemistry with specialisation in Mineral Beneficiation (Essential).

2. One Professor of Mathematics in the Department of Physics and Mathematics.

QUALIFICATIONS :

- (a) Doctorate degree in Mathematics, preferably Applied Mathematics with specialisation in Geodesy/Theoretical Seismology/Applied Elasticity at Master's level (Essential).
- (b) Knowledge of application of mathematical techniques to mining industry (Desirable).

3. One Professor in Applied Geophysics in Department of Applied Geophysics.

QUALIFICATIONS :

- (a) A doctorate degree in Mining Geophysics or Exploration Geophysics (Essential but relaxable to MSc degree in Physics/Radiophysics in case of candidates having seven years field experience in gravity/seismic/well-logging/electrical/electromagnetic methods).
- (b) At least three years research experience in the field of Mining Geophysics or Exploration Geophysics or published work of high standard in these fields (Essential).

4. One Assistant Professor for Coal Preparation, in the Department of Chemistry, Fuel and Metallurgy.

QUALIFICATIONS :

- (a) MSc degree in Chemistry or degree in Metallurgy, Mining or Mechanical Engineering or equivalent (Essential).
- (b) A post-graduate degree in Mineral Beneficiation (or equivalent), or a doctorate degree in Chemistry with specialisation in mineral/coal beneficiation. (Essential but relaxable in case of candidates having not less than five years experience in coal preparation practices/techniques).

5. Two Lecturers in Electrical Engineering in the Department of Engineering and Mining Machinery.

QUALIFICATIONS :

- (a) A post-graduate degree (or equivalent qualification) in Electrical Engineering with specialisation in Control Systems/Power Systems/Instrumentation and Electronics (Essential).
- (b) Experience in installation/maintenance of Mining machinery (Desirable).

6. One Lecturer in Geophysical Instrumentation in the Department of Applied Geophysics.

QUALIFICATIONS :

- (a) Degree in Electro-communication Engineering or M Sc degree in Physics or Electronics (Essential).
- (b) Post-graduate degree (in case of engineering graduates) or doctorate degree (in case of science graduates). (Essential but relaxable in case of candidates with special experience in repair of geophysical instruments).
- (c) Capability to repair geophysical instruments.

7. One Lecturer in Geophysics in the Department of Applied Geophysics.

QUALIFICATIONS :

Doctorate degree in Applied Geophysics (Essential).

8. One Lecturer in the Department of Petroleum Technology-two-year duration lien vacancy at present (deputation terms, within the salary grade, would be offered to an employee of the Government or of a Public Sector undertaking who is selected and comes on lien).

QUALIFICATIONS :

- (a) A post-graduate degree in Petroleum Technology/Engg or Mechanical Engg (or equivalent) (Essential but relaxable to Degree in Petroleum or Mechanical Engineering in case of candidates otherwise considered specially suitable).
- (b) Experience in relation to Petroleum Engineering practices, e.g., Production Engg, Reservoir Engg, Drilling Engg (Essential).

9. One Lecturer in Statistics in the Department of Physics and Mathematics.

QUALIFICATIONS :

- (a) Doctorate degree in statistics with specialisation in experimental or numerical analysis/computer programming (Essential).

General : Applications should have a uniformly good academic record and an interdisciplinary approach and aptitude for developing course material. They shall have secured at least 60% marks in the qualifying (essential qualification) examination : this requirement is relaxable for candidates otherwise considered suitable. In case candidates with the prescribed postgraduate qualifications are not available, the Selection Committee may consider candidates with lower qualifications.

However, the prescribed qualifications would have to be acquired by the appointee within a period of five years from the date of appointment, failing which further increments would be stopped till the prescribed qualifications are acquired. The probationary period also would be counted from the date of acquiring the prescribed qualifications.

Applicants should send, along with their applications, a list of their publications (with full publication references) and reprints of some selected papers as also copies of course material already prepared if any.

Applications in the prescribed form (obtainable from the Registrar, Indian School of Mines, Dhanbad-826004 on receipt of a self-addressed envelope of the size 29 cm x 12 cm affixed with postage stamps of the value of Rs. 1.95) should reach the Registrar on or before 28th August 1976. Those in service should apply through the employer. If the application through proper channel is likely to be delayed, an advance copy may be submitted but in such a case the original application must also reach the Registrar within 10 days of the aforesaid date.

The School reserves the right to consider cases of 'contact candidates' whose names have been suggested by CSIR/Experts, etc. even though they have not formally applied for the posts.

Applications should be accompanied by a Money Order receipt for a sum of Rs. 8/- (Rs. 2/- for Scheduled Caste/Scheduled Tribes Candidates) in token of remittance of application fees to the Registrar, Indian School of Mines, Dhanbad-826004. Candidates called for interview will be paid I Class Railway fare for to-and-fro journey by the shortest route or the actual expenses incurred, whichever is less.

**M. S. RAMAMURTHY
REGISTRAR**

CLASSIFIED ADVERTISEMENTS

SAMBALPUR UNIVERSITY
JYOTI VIHAR: BURLA

No 25685/TDS. Dated 17-7-76
Advertisement

Applications in the prescribed forms are invited for the following posts in the University Post-graduate Department as stated below.

Professor (a) Political Science—I
(b) Biological Sciences—I
Scale of Pay Rs.1100-50-1300 60-1600 -
(The pay scale is likely to be revised)

Age of retirement—Sixty Years

QUALIFICATION

- (i) (a) Political Science—First or high Second class Master's Degree in the subject.
- (b) Biological Sciences—First or high Second class Master's Degree in Biological Sciences or Botany or Zoology with specialisation in one or more of the following areas :
Plant Physiology
Bio-Chemistry
Animal Physiology
Environmental
Biology Genetics/Bio-Physics
Microbiology
- (ii) A Doctorate Degree of published work of equivalent standard.
- (iii) Experience of conducting and guiding research work
- (iv) Independent published work of high standard in addition to requirements in (ii) above.
- (v) Teaching experience of atleast ten years in a College or University with atleast 7 years experience in P.G.Hons teaching.

A Professor may also be appointed on contract basis for a specified period.

The posts carry usual dearness allowance as would be sanctioned by the University from time to time.

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs 10/- (Rupees ten) only. Candidates intending to receive forms by post are required to send (a) Crossed Postal Order Rs.10.-payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla (b) a Self-addressed envelope (23 cm x 10 cm) with postage stamps worth Rs.2.85 p affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY" superscribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of applications in the office of the University at Jyoti Vihar, Burla, Sambalpur (Orissa) is 20.8.76. The candidates will be required to appear for an interview before a Selection Committee at their own expenses.

All communications should be addressed to the Registrar by designation only.

Sd/-
G.P.Guru
REGISTRAR.

UNIVERSITY OF KERALA

No. Ad. All.3.169/76

Notification

Applications are invited from qualified candidates for appointment to the under mentioned posts in the University.

Name of post	No. of posts	Area of specialisation, if any
1	2	3
1. Department of Mathematics Professor Reader	1 2	Applied Mathematics. For one post Applied Mathematics, for the other post no specialisation prescribed
2. Department of Statistics Professor Reader	1 1	
3. Department of Physics Professor Reader	1 3	Allied Electronics.Space Physics On each in Material Science Solid State Physics Electronics
4. Department of Chemistry Reader	1	Mineral Chemistry.
5. Department of Bio-Chemistry Professor Reader	1 1	
6. Department of Geology Professor Reader	1 1	Economic Geology Marine Geology Marine Geology Economic Geology
7. Department of Botany Reader	2	For one post Plant Physiology and for the other post no specialisation prescribed
8. Department of Zoology Professor Reader	1 2	Physiology Environmental Biology For one post Environmental Biology Physiology and for the other post no specialisation prescribed
9. Department of Economics Reader	2	(One each in Micro Economics (Quantitative Analysis) Political Economy.
10. Department of Politics Professor Reader	1 1	Political Sociology
11. Department of Psychology Reader	1	Industrial/Social Psychology.
12. Department of Sociology Professor Reader	1 1	Sociology of Development/ Urban Sociology
13. Department of Malayalam Professor Reader	1 1	
14. Department of Tamil Professor Reader	1 1	
15. Department of Sanskrit Reader	1	
16. Institute of English Reader	1	English Language.
17. Department of German Reader	1	
18. Department of Russian Reader	1	
19. Department of Linguistics Reader	1	
20. Oriental Research Institute and Manuscripts Library Reader	1	Malayalam/Sanskrit.

21. Central Workshop & Instrumentation Laboratory

Instrumentation Engineer	1
Junior Engineer/Scientist (Electronics)	1

Scales of Pay

1. Professor	—	Rs. 1200—1750
2. Reader	—	Rs. 850—1450
3. Instrumentation Engineer	—	Rs. 850—1450
4. Junior Engineer/Scientist	—	Rs. 600—1250

Appointments to the posts notified will be made in accordance with Section 6 Sub-section (ii) of Chapter II of the Kerala University Act of 1974.

The details of qualifications, experience etc., and application forms can be had from the Deputy Registrar (Administration), University of Kerala, Trivandrum on payment of Rs. 2,- by Crossed Postal Order in favour of the Registrar, University of Kerala, Trivandrum specifying the post for which application forms are required.

The candidates who have sent in requisitions for application forms in response to the University Notification of even number dated 25-2-1976 (subsequently cancelled) will be supplied the same.

The last date for receipt of applications for all the posts is October 16, 1976.

University Buildings, Trivandrum,
15-7-1976

A Sreedhara Menon
REGISTRAR

**MARATHWADA UNIVERSITY
NO ESTT-DEPT ADVT 4**

Applications are invited for the following posts:

Professors (Pay-scale Rs 1100-50-1300-60-1600) of Commerce (Financial Management), Sociology, History and Ancient Indian Culture, Physics, Mathematics, Botany, and Zoology, one each.

Readers (Pay-scale Rs 700-50-1250) in Econometrics, Mathematical Economics, Economics (Temporary), Solid State Physics, Lasers, Physics, Inorganic Chemistry, Journalism, Dramatics, Hindi, Russian Language, Commerce, Botany one each, and Readers in Mathematics, Political Science and History, two each.

Lecturers (Pay-scale Rs 400-40-800-50-950) in Hindi, English, Physical Chemistry, Dramatics, Journalism, German, French, Russian, Chinese, Zoology, one each, and Lecturers in Marathi, Statistics, Political Science, Management (for M.B.A. Course), two each, and Economics Three (One Temporary), Mathematics Three (one Temporary), Botany Three (Plant Pathology and Plant Physiology), Modern Biology (For M.Sc.) Three and in Sociology Four (One in Social work).

Lecturers in Sociology Two, Management (for M.B.A. Course) Two, and Modern Biology (for M.Sc.) Three mentioned above are for the Post-Graduate Centre at Nanded.

The scales of pay carry with them the benefits of Dearness Allowance in accordance with the rules of the University and the same are likely to be revised. Out of the posts of Lecturers mentioned in this advertisement, 34% posts are reserved for candidates belonging to Scheduled Castes, Scheduled Tribes and Other Backward Classes.

General Qualifications:

1. Professor:—At least a Second Class Master's Degree in the subject. A Research Degree of an Indian or

Foreign University of Doctorate standard and/or published work of an acknowledged merit.

Ordinarily ten year's total teaching experience in the subject in the University or College, including about five years' experience of teaching Post-graduate classes. In addition a person should possess experience of undertaking and guiding research in the subject.

- II Reader:—At least a Second Class Master's Degree in the subject. A Research Degree of an Indian or Foreign University of a Doctorate standard and/or published work of acknowledged merit in the subject. Five years' teaching experience in the University or College preferably wholly at Post-graduate level. Research experience and ability to undertake and guide research in the subject will be considered a desirable qualification.

- III Lecturer:—At least a Second Class Master's Degree in the subject from a recognised University and/or a Research Degree of Doctorate standard and/or research publications of acknowledged merit in the subject.

Ordinarily Five years' teaching experience to degree and/or Post-graduate Classes.

Candidates applying for the posts of Professors and Readers should ordinarily be below the age of 45 and those applying for the posts of Lecturers should ordinarily be below the age of 35 years. The age limit may be relaxed in the cases of deserving candidates.

Eight copies of applications together with eight copies of each of the testimonials, if any, separately for each post giving particulars in the prescribed form alongwith a Postal Order of Rs.3/- should be sent to the Registrar so as to

reach him not later than AUGUST 30, 1976. Testimonials should be attested by a member of the Senate of Marathwada University or by a Gazetted Officer. The prescribed application forms will be supplied to the candidates on request accompanied by a self addressed envelope (23 x 10 cms) bearing Postal Stamps worth (70) paise for the postage separately for each post.

Candidates, who are employed at present, must submit their applications through their employers.

Canvassing, direct or indirect, will be a disqualification.

University Campus,
AURANGABAD
Ref.No.Estt Dept./
July 14, 1976.

S B. CHAVAN
REGISTRAR

**GURU NANAK DEV
UNIVERSITY, AMRITSAR**

Advertisement No. 17/76.

Applications are invited for the following posts on prescribed form obtainable (free of cost) from office of the Registrar, Guru Nanak Dev University, Amritsar by making a written request accompanied by a self addressed stamped envelope of 23 x 10 cms. so as to reach this office by 20th August, 1976 alongwith crossed Indian Postal order(s) for Rs. 7.50 drawn in favour of the Registrar, Guru Nanak Dev University, Amritsar. (Besides allowances admissible under the rules, higher starting salary may be given depending upon qualifications & experience).

1. Professor of (i) Applied Sciences (ii) Sociology. (Grade Rs 1500-60-1800-100-2000-125 2-2500)
2. Reader in Political Science. (Grade Rs 1200-50-1300-60-1900)
3. Lecturers in (i) Sociology (ii) History. (Grade Rs 700-40-1100-50-1600)

QUALIFICATIONS : (i) Consistently good academic record with 1st or High 2nd class (b-) Master's degree in a relevant subject or an equivalent degree of a foreign University. (ii) Either the degree of Ph. D or an equivalent research degree or published research work of a high standard. (iii) About ten years' experience of teaching M.A./M.Sc. Classes and guiding research in case of Professors; about 5 years' experience in case of Reader and post-thesis research work; and teaching/research experience will be an additional qualification for the posts of Lecturers. (iv) Knowledge of Punjabi and a foreign language other than English will be an additional qualification.

SPECIALIZATION FOR LECTURER IN HISTORY : Medieval Indian History Working knowledge of Persian (desirable).

Bharpur Singh
REGISTRAR

**SHIVAJI UNIVERSITY
KOLHAPUR.**

Advertisement

Corrigendum to the advertisement dated 21-6-1976 regarding the teaching posts.

Page 2 under the heading LECTURER under (b) for para 2, substitute the following:—

“Ph.D with M.A. M.Sc. II Class will be considered as teaching experience.”

The last date for receiving applications for all lecturers posts is extended upto 20th August, 1976.

Usha Ithape
REGISTRAR

UNIVERSITY OF OXFORD

Rhodes Scholarships, awarded for study at the University of Oxford, England, from October, 1977. Candidates men and women (single) with first class degrees and other academic and extra-curricular achievements, particularly in sports, must be below 25 years on October 1, 1977. Particulars from Secretary, Rhodes Scholarships, St Stephen's College, Delhi 110 007.

**INDIAN INSTITUTE OF
TECHNOLOGY, BOMBAY**

P.O. I.I.T POWAI
BOMBAY-76

Advertisement No. 844.76.

Applications are invited for the post of Medical Officer for the Hospital at this Institute.

Qualification & Experience : M.B.B.S Degree of a recognized University with at least 3 years experience as House Physician and Medical Registrar in a General Hospital or equivalent experience in similar status, as well as supervision of Pathological-X-ray laboratories

Age : Not more than 45 years.

Scale of Pay : Rs 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200 plus non-practising allowance on slab basis plus other allowances such as D.A., C.C.A., etc. as admissible under the rules.

Residential accommodation free of Licence Fee will be provided in the Campus. Water and Electricity charges will however be recovered according to rules.

Applications should be made on the prescribed forms obtainable free of charge from the Registrar of the Institute by sending Self-addressed envelope of 25 cm x 10 cm size.

The completed application together with a crossed Indian Postal Order of the value of Rs. 3/- (Rs. 0.75 for candidates belonging to Scheduled Caste and Scheduled Tribes) and the requisite certificates should reach the Registrar, Indian Institute of Technology, P.O.I.I.T. Powai, Bombay 400 076. by August 26, 1976.

INDIAN SCHOOL OF MINES

DHANBAD-826004

Advertisement No. 420029/76 Dated the July 23, 1976.

**FACULTY POSITIONS IN MANAGEMENT
AND INDUSTRIAL ENGINEERING**

The following vacancies exist or are likely to arise at Indian School of Mines—a 'deemed' University under the University Grants Commission Act, 1956. The School conducts a five-year integrated programme leading to the award of B Tech degree in Mining Engineering and Petroleum Engineering, and of M.Sc. degrees in Applied Geology and applied Geophysics. At the Master's level in engineering discipline, it conducts two-year industry-oriented MTech programmes one in Mining Engineering and the other in Opencast Mining, as also a 3-year part-time MTech programme in Mining Machinery. Three one-year post-graduate programmes have also been started this year : two MSc Tech programmes, one in Mining Geophysics and one in Exploration Geology as also a DISM programme in Mineral Beneficiation. The School has on its roll nearly 35 Research Fellows working for its PhD degree in various disciplines, and has been approved as a QIP Centre for MTech PhD in Mining Engineering.

The School has an ambitious programme of continuing education tailored to meet the needs of the mineral industries. A Centre for Study in Mine Systems Design has been set up at the School, and a Centre of Studies in Ore Deposit has been approved by NCST. The School has an approved scheme of institutional consultancy and has entered in a big way in the R&D field. It is now setting up a new Department of Management and Industrial Engineering to support its various undergraduate and postgraduate programme as also to organise short and medium term courses in industrial engineering and other management subjects of relevance to the mineral industries.

General Job Description :

Teaching undergraduate and post-graduate students, running short courses in functional areas; guiding research students and scholars; preparation and regular updating of course material, etc. Faculty members are expected to participate fully in the School's other curricular and co-curricular activities and to identify themselves with its corporate objectives.

Pay Scales : Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

Assistant Professor : Rs. 1200-50-1300-60-1900.

Lecturer : Rs. 700-40-1100-50-1600.

Besides pay, ISM employees get allowances as admissible to Central Government employees. The total emoluments at the Rs. 1500/- stage currently come to Rs. 1743/-; at Rs. 1200/- stage to Rs. 1543/- and at Rs. 700/- stage to Rs. 889/-. Higher initial start may be granted to specially qualified and experienced candidates.

Age : normally not more than 50 years for the post of Professor, 40 years for Asstt. Professor and 35 years for Lecturer. Upper age limit relaxable by five years in respect of (i) candidates belonging to Scheduled Castes/Tribes, (ii) displaced goldsmiths and (iii) displaced persons from Bangladesh (the erstwhile East Pakistan) who had migrated to India on or before 1.1.1964.

Experience : in teaching, research or industry (including technical and scientific organisations) for ten years in case of post of Professor (including at least five years in position of high responsibility), six year in case of post of Assistant Professor (including at least three years in position of responsibility), and two years in case of post of Lecturer, and specialised knowledge/experience in the specified speciality.

1. **One Professor** : for HINDUSTHAN STEEL Chair in Management ; for a period of three years to start with, but likely to become permanent:

Qualifications : (1) A post-graduate degree or equivalent qualification in Management. (Essential)

(2) Specialisation in Organisation Development, with publications of high merit in the subject. (Essential).

(3) Ability to guide and supervise research and to prepare case studies in management-areas of relevance to the mineral industry. (Desirable).

(If suitable candidates are not available at the level of Professor, the post may be filled at the level of Assistant Professor).

2. **One Assistant Professor** for Personnel Management :

Qualifications : (1) A Doctor's degree in Social Science/Psychology/Industrial Psychology/Personnel Management or equivalent (Essential)

(Relaxable in case of candidates with special experience in teaching or industry and possessing at least a Master's degree in one of the disciplines mentioned above if a suitable candidate with Ph.D. is not available).

(2) Familiarity with the problems of mineral industry (Desirable)

3. **One Lecturer** in Industrial Engineering.

Qualifications :

(1) A postgraduate degree in Industrial Engineering/Business Management/Operation Research with a degree in any branch of Engineering (Essential)

(2) Familiarity with the problems of mineral industry (Desirable)

General : Applicants should have a uniformly good academic record and an interdisciplinary approach and aptitude for developing course material. They shall have secured at least 60% marks in the qualifying (essential qualification) examination: this requirement is relaxable for candidates otherwise considered specially suitable. Applicants should send, along with their applications, a list of their publications (with full publication references) and reprints of some selected papers as also copies of course material already prepared, if any.

Applications in the prescribed form (obtainable from the Registrar, Indian School of Mines, Dhanbad-826004 on receipt of a self-addressed envelope of the size 29 cm x 12 cm affixed with postage stamps of the value of Rs. 1.95) should reach the Registrar on or before August 22, 1976. Those in service should apply through the employer. If the application through proper channel is likely to be delayed an advance copy may be submitted but in such a case the original application must also reach the Registrar within 10 days of the aforesaid date.

The School reserves the right to consider cases of 'contact candidates' whose names have been suggested by CSIR/Experts, etc., even though they have not formally applied for the posts.

Applications should be accompanied by a Money Order receipt for a sum of Rs. 8/- (Rs. 2/- for Scheduled Caste/Scheduled Tribes candidates) in token of remittance of application fees to the Registrar, Indian School of Mines, Dhanbad-826004. Candidates called for interview will be paid I Class railway fare for to-and-fro journey by the shortest route or the actual expenses incurred, whichever is less.

M. S. RAMAMURTHY
REGISTRAR

ALIGARH MUSLIM UNIVERSITY

Advertisement No. 8/76-77

Applications, on the prescribed form, are invited for the following posts:

1. **Professor of Electrical Engineering.**
Scale: Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances

Qualifications:

(a) A first or high second class basic degree in Electrical Engineering. (b) Ordinarily Postgraduate degree in Electrical Engineering. (c) Ordinarily 10 years experience of which 5 years should be in a position of responsibility in teaching in an Engineering Institution of a degree standard and or research

Desirable:

Published research work and specialization in Electronics.

2. **Reader in History:**

Scale: Rs. 1200-1900 plus allowances

Qualifications:

(i) A first or high second class Master's degree in History of an Indian University or an equivalent foreign qualification; (ii) A research degree of a doctorate standard or published work of a high standard; and (iii) At least five years experience of teaching postgraduate classes and some experience of guiding research.

3. **Reader in Persian:**

Scale: Rs. 1200-1900 plus allowances

Qualifications:

A first or a high second class Master's degree in Persian of an Indian University or an equivalent foreign qualification. A research degree of a doctorate standard or published work of a high standard. At least five years experience of teaching postgraduate classes and some experience of guiding research.

4. **Lecturer in French: (Department of English):**

Scale: Rs. 700-1600 plus allowances

Qualifications:

Consistently good academic record with first or high second class (B+) Master's Degree in French or an equivalent foreign qualification

Desirable:

(1) Doctor's degree or published work of an equally high standard. (2) Teaching experience of Degree/Postgraduate classes. Provided that if a teacher is not a Ph.D. at the time of his/her appointment and does not qualify himself/herself for the award of a Ph.D. Degree from a recognised University in the subject which is being taught by him/her within the period of 5 years from the date of his/her appointment or does not give evidence of research work of equal standard within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of 5 years till such time he/she fulfils the above mentioned requirements.

5. **Lecturer in Plastic Surgery:**

Scale: Rs. 700-40-1100-50-1600 plus allowances

Qualifications:

M.Ch. (Plastic Surgery), M.S. (Plastic Surgery). Speciality Board of Plastic Surgery (USA). M.S. (Surgery/Orth.) / F.R.C.S. in Surgery with two years special training in Plastic Surgery.

Experience:

The requisite recognised postgraduate qualifications in the subject and three years teaching experience as Tutor/Registrar, Resident in Plastic Surgery or in a Plastic Surgical Unit in the Department of Surgery of which one year should be after postgraduate qualification.

Candidates must possess Medical Qualifications included in 1st or 2nd Schedule or Part II of the 3rd Schedule (other than) licentiate qualifications of the Indian Medical Council Act, 1956. Holders of educational qualifications included in Part II of 3rd Schedule should fulfil the conditions stipulated in Section 13(3) of the Indian Medical Council Act, 1956. Must possess a basic university or equivalent qualification entered in Schedules under State/Central Medical Registration Act. (For the post at Sl. No. 5 only).

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending Self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is 25th August 1976. Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

Jamalur Rahman
REGISTRAR

BIDHAN CHANDRA KRISHI VISWA VIDYALAYA, WEST BENGAL

Advertisement No. Rect. 4/76

Applications in prescribed forms are invited for the following posts on the scales mentioned below with benefits of Dearness Allowances and other allowances as admissible under the Viswa Vidyalaya Rules.

A. Agronomist—(One Post : Temporary under All India Coordinated Potato Improvement Project).

Qualifications: Essential:

(i) Consistently good academic record with first or high Second class (B+) Master's degree in Agronomy following a good Bachelor degree in Agriculture;

(ii) A Doctoral degree or published work of an equally high standard in Agronomy;

(iii) At least five years experience of Field Research as evidenced by published work.

Desirable: Familiarity with Agricultural conditions of West Bengal.

B. Lecturer in the Department of Agricultural Engineering, Faculty of Agriculture: (Three Posts: Two Posts against temporary lien vacancies, likely to be permanent and One post temporary against leave vacancy.)

Qualifications: Essential:

(i) Consistently good academic record with first or high second class (B+) Master's degree in Agricultural Engineering following a good bachelor's degree in Agricultural Engineering;

(ii) A doctoral degree or published work of an equally high standard in Agricultural Engineering;

(iii) Specialisation in Soil and Water conservation/Farm Machinery/Crop processing;

(iv) At least two years experience in teaching Research in Agricultural Engineering.

C. Lecturer in the Department of Agricultural Economics : (One post: temporary against lien vacancy, likely to be permanent.)

Qualifications: Essential:

(i) Consistently good academic record with first or high Second class (B+) Master's degree in Agricultural Economics following a good bachelor's degree in Agricultural Economics;

(ii) A doctoral degree or published work of an equally high standard in Agricultural Economics.

(iii) At least two years experience in teaching Research in Agricultural Economics.

D. Junior Plant Breeder: (One Post: temporary under All India Coordinated Potato Improvement Project Scheme)

Qualifications: Essential:

(i) Consistently good academic record with first or high second class (B+) Master's degree in Agricultural Botany Genetics and Plant Breeding following a good B.Sc. (Ag.) degree or B.Sc. (Hons.) degree in Botany;

(ii) A Doctoral degree or published work of an equally high standard in the Field of Plant Breeding;

(iii) At least three year's experience of Field Research as evidenced by published work.

Desirable: Research experience on breeding of Potato.

E. Junior Virous Entomologist: (One Post: Temporary under "Ecology of Nephottetix Spp. and its relation with tungro virus of rice).

Qualifications: Essential:

(i) Consistently good academic record with first or high Second class (B+) Master's degree in Entomology following a good bachelor's degree in Agriculture.

OR

Consistently good academic record with first or high Second class (B+) Master's degree in Zoology with specialisation in Entomology with Research Experience in insect Ecology following a good Hons. degree in Zoology;

(ii) A Doctoral degree in Entomology

Desirable: Research Experience in Virus Entomology.

F. Assistant Comptroller : (One Post):
Qualifications Essential:

(i) Bachelor's degree;

(ii) Experience as a Chartered Accountant or Cost and Works Account of India or should have passed Subordinate Accounts Service Examination of any State Govt. or Central Govt. of an equivalent or higher examination and have had experience of service in Govt. or Quasi-Govt. or any other reputed organisation, for a minimum period of five years.

Desirable: Experience as an executive or in an independent position for at least three years in a Govt. or Quasi-Govt. or any other reputed organisation.

Scale of Pay: For Post 'A':

Rs. 1200-50-1300-60-1900

For Posts 'B to D':

Rs. 700-40-1100-50-1600.

For Posts 'E & F':

Rs. 400-40-800-50-950-(Likely to be revised upwards)

Age:

For post 'A' preferably below 50 years, For posts 'B to F' preferably below 40 years

Experience and age limits may be relaxed on the recommendations of the selection Committee in the case of a candidate otherwise exceptionally qualified. A higher initial pay in the scale may be granted on the basis of qualifications, experience and present emoluments of the candidate.

Selected Candidates will be required to serve anywhere in W. Bengal.

Reservation for Scheduled Castes and Scheduled Tribes candidates for the posts will be made as per Viswa Vidyalaya rules.

Applications must be submitted in the prescribed form which may be obtained from the office of the Registrar, Bidhan Chandra Krishi Viswa Vidyalaya P.O. Kalyani, Nadia, personally or by sending a self addressed stamped (25 paise) envelope (25 cm x 12 cm) on Payment of Rupees Eight (Rs. 8.-) for the Posts at 'A' to 'F' by Indian Crossed Postal Order in favour of 'Bidhan Chandra Krishi Viswa Vidyalaya'. Forms will be distributed between 11.00 am. and 3.30 p.m. on working days and 11.00 a.m. and 1.00 p.m. on Saturdays.

Persons already in employment should apply through proper channel. Application form completed in all respect along with the attested Copies of mark sheets and certificates should be submitted in an envelope superscribed with the name of the post and must reach the office of the Registrar on or before the 23rd August 1976.

Candidates called for interview will have to appear the same at their own cost.

REGISTRAR

SAMBALPUR UNIVERSITY
JYOTI VIHAR : BURLA

No 25683/TDS

Dated 17-7-76

ADVERTISEMENT

Application in the prescribed forms with attested copies of mark-sheets and certificates of all examinations passed are invited for the following teaching posts in the University College of Engineering, Burla.

1. Description of the posts	No. of posts	Scale of pay
1. Professor of Mathematics	1	1100-50-1300-60-1600/-
2. Lecturer in Electrical Engineering.	2	400-40-800-50-950/- (The scales of pay are likely to be revised). All posts carry usual dearness allowance as would be sanctioned by the University from time to time.

II. Essential Qualifications :

1. Professor of Mathematics

- At least a first or High Second Class M. Sc. Degree and specialisation in any branch of applied Mathematics.
- Doctor's Degree or published research work of equivalent standard.
- Experience of conducting and guiding research work.
- Independent published work of high standard in addition to requirement in (b) above
- Teaching experience of ten years in a college or University

Desirable qualification : Teaching experience in an Engineering College

2. Lecturer in Electrical Engineering

First class Bachelor's Degree in Electrical Engineering with two years Industrial Research experience or a Master's Degree in Electrical Engineering

Seven copies of the application form will be supplied from the University office to each candidate in person on cash payment of Rs 10/- (Rupees ten) only. Candidates intending to receive forms by post are required to send (a) a crossed Indian postal Order of Rs. 10/- payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla-768017, (b) a self-addressed envelope (23 cm x 10 cm) with postage stamps worth of Rs. 2.85 p affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN THE SAMBALPUR UNIVERSITY" superscribed on it. Money Orders or cheques will not be entertained

The last date of receipt of application in the office of the University is 20.8.76.

Candidates will be required to appear at an interview at their own expenses before a Selection Committee. Issue of this advertisement does not make it obligatory on the part of the University to make the appointments.

The selected candidates will be required to join within one month from the date of issue of appointment letters.

All communications should be addressed to the Registrar by designation only and not by name.

Sd -
G P GURU
REGISTRAR

NORTH-EASTERN HILL UNIVERSITY
LOWER LACHAUMIERE
SHILLONG-793001
No. F.1-21-Estt 75

Dated Shillong, the 21st July, 1976.

Applications are invited from suitable candidates for the following positions in the Department of Zoology and Botany in the School of Life Sciences and in the Department of Geography in the School of Environmental Sciences of the University.

Name of Post	Number	Scale of Pay
1. Lecturer in Zoology	2	700-40-1100-50-1600
2. Lecturer in Botany	1	700-40-1100-50-1600
3. Lecturer in Geography	6	700-40-1100-50-1600
4. Senior Cartographic Asstt (Geog.)	1	550-25-750-EB-30-900
5. Senior Photo-Reproduction Asstt (Geog.)	1	550-25-750-EB-30-900
6. Senior Statistical Asstt. (Geog.)	1	550-25-750-EB-30-900
7. Research Asstt (Geog.)	1	550-25-750-EB-30-900
8. Map-Store Asstt. (Junior Grade) (Geog.)	1	425-15-500-EB-15-560-20-700
9. Artist (Bot)	1	260-6-290-EB-6-326-8-366-EB-8-390-10-400
10. Laboratory Attendant	1	210-4-250-EB-5-270

Qualifications:

Essential:

Lecturer in Zoology and Botany:

Ph.D. Degree with a First or High Second Class at the M.Sc. Degree level.

Lecturer in Geography:

Master's Degree in Geography with at least good second class from an Indian/Foreign University with consistently good academic record. Research Degree or equivalent published work or sufficient research and teaching experience.

Senior Cartographic Assistant:

Candidates must have a good Master's Degree in Geography with specialisation in Cartographic techniques. Preferably, at least two years experience as Cartographer.

Senior Photo-Reproduction Assistant:

Candidates must have a bachelor's degree with sufficient training in reproduction techniques. Preferably, at least two years working experience as Technical Assistant in a Photo-Reproduction Laboratory.

Senior Statistical Assistant:

Candidates must have a good Master's degree in Statistics/Geography with specialisation in quantitative methods. Preferably, at least two years experience as Statistical Assistant.

Research Assistant:

Candidates must have a good Master's degree in Geography with specialisation in quantitative methods. Preferably, the candidate should have an aptitude for research.

Map-Store Assistant:

Candidates must have a good Bachelor's degree in Geography, preferably, with some experience of cataloguing the maps etc.

Laboratory Attendant :

Candidates must have passed at least Pre-University with Geography as one of the optionals.

Artist:

Diploma/Certificate Course in Fine Arts. Experience of doing scientific sketches would be an added qualification.

Desirable:

Lecturer in Zoology:

Ability to collaborate in the Forest Biology of the Department of Botany in the School of Life Sciences.

Lecturer in Botany:

Ability to collaborate in the Forest Biology and Freshwater Biology programme of the School.

Lecturer in Geography:

Aptitude for inter-disciplinary approach in teaching research and keenness for team work.

Artist:

Experience in Photography preferably with Certificate/Diploma in Photography.

Fields of Specialization:

For Lecturer in Zoology:

Biochemistry, Entomology preferably with Toxicology, Ecology with spe-

cialisation in Fisheries or Freshwater Biology.

For Lecturer in Botany.

Algal Ecology and Physiology.

For Lecturer in Geography:

1. In Political Geography and the problems of the land-locked areas.
2. In Regional Planning and should be able to teach Quantitative Geography.
3. In resource Geography and should be able to teach Ecology.
4. In Historical Geography and should be well acquainted with the mapping techniques of historical data and problems of identification.
5. In Agricultural Geography and should be able to teach regional Geography.
6. In Quantitative Geography with sufficient knowledge of cartographic techniques.

Age:

(Applicable from Post 4 to 10) Candidates must not be less than 27 years on 1st January, 1976. There will be no age limit for those candidates who are already in Government Service provided they entered Service within the age limit. (Five years relaxation will be admissible to candidates belonging to Scheduled Tribe Scheduled Castes).

Applications for the posts of Lecturer in prescribed form obtainable from the office of the undersigned and in a Standard Form for the other posts should reach the undersigned by 16th August, 1976 at the latest together with an Indian Postal Order of Rs. 5/- (Rs. 2.50 for Scheduled Caste/Scheduled Tribe candidates) for the first eight posts and Rs. 3/- (Rs. 1.50 for Scheduled Caste, Scheduled Tribe candidates) for the last two posts in payment of an application fee made out in favour of the "North-Eastern Hill University", Shillong payable at Shillong. Request for application form should be accompanied by a self addressed envelope of the size of 10" x 4 1/2" affixing thereon 40p worth of stamps.

- Note:
1. Persons in service should submit their applications through their employers.
 2. Candidates called for interview will have to appear before the Selection Committee at the office of the North-Eastern Hill University or at any place specified. The rate of travel allowances permitted by the Central Universities will apply for the post of Lecturer but no T.A. D.A. will be admissible for the other posts.
 3. These posts are open to all citizens of India who satisfy the required qualifications. Certain percentage of the posts are reserved for candidates belonging to the Scheduled Castes/Scheduled Tribes.
 4. Besides the Basic Pay, allowances admissible to the officers of corresponding categories of the Government of India posted at Shillong, shall also be paid by the University.

Sd/-

T. K. Tochhawng

Officer on Special Duty
(Administration)

North-Eastern Hill University

UNIVERSITY OF GAUHATI GAUHATI-781014

Advertisement No. 9 of 1976

Applications are invited for the following posts:—

1. Professor of Bengali : One post (permanent).
2. Professor of Business Administration (5th Plan) : Three posts
3. Reader in Business Administration (5th Plan) : One post
4. Lecturer in Business Administration (5th Plan) : Six posts
5. Lecturer in Bengali : One post (Permanent) Specialisation : Literature
6. Lecturer in Chemistry : One post (permanent) Specialisation : Organic Chemistry.
7. Lecturer in Anthropology : Two posts (permanent). Spl : For one post Physical Anthropology and for the other post candidates should state their Specialisations.
8. Lecturer in Assamese : One post (permanent) Specialisation. M.A. in Comparative philology (Indo-Aryan Group) or M.A. in Sanskrit (Prakrit Group) or M.A. in Assamese (Language Group) Preference will be given to one who has specialisation in Middle Indo-Aryan.
9. Lecturer in Pol. Science : One post (permanent) Spl : Sociology.
10. Lecturer in Economics : One post (Permanent) Spl : Monetary Economics and either Recent Economic Development or Industrial Economics.
11. Lecturer in English : one post (permanent)
12. Lecturer in History : one post (permanent)

Scale of pay—Professor Rs. 1100-50-1300-60-1600/-
Reader Rs. 700-50-1250/-
Lecturer Rs. 400-40-800-50-950/-
The scales of pay are subject to revision according to recommendations of the U.G.C.

All posts carry usual allowances admissible under the University rules in force from time to time and the incumbents will be eligible to pension-cum-G.P.F.-cum-Gratuity or Contributory Provident Fund as per relevant statutes of the University.

Essential Qualification :
For Professor

(1) Candidates must be recognised scholars in their respective subjects with Doctor's degree or equivalent published work.

(2) Continuous research work of merit as evidenced by published papers in standard journals or published work of merit.

(3) 10 (ten) years' post-graduate or 15 (fifteen) years' Honours teaching experience (4) Experience in guiding and promoting research.

In case of candidate of exceptional abilities with outstanding research contributions, the requirement of teaching experience may be suitably relaxed.

For Reader

Candidate must have (1) A Doctorate degree or published work of an equivalent high standard (2) Consistently good academic Record with First or High Second Class (B+) Master's degree in a relevant subject or any equivalent degree of a foreign University (3) Evidence of continuous research and (4) experience of 5 years' post-graduate teaching or 8 years' Honours teaching

For Lecturer

In addition to the specialisation mentioned against each post candidate must possess (a) Doctorate degree or published work of an equally high standard (b) Consistently good academic record with first or High Second Class (B+) Master's degree in a relevant subject or an equivalent degree of a foreign University

In the case of a candidate whose research work as evident either from his thesis or from his published work is of a high standard, the qualification under (b) may be suitably relaxed.

If a candidate possessing a Doctor's degree or equivalent published work is not available or is not considered suitable a person possessing a consistently good academic record (due weightage being given to M. Phil or equivalent degree or research work of quality) may be considered for appointment on condition that he will have to obtain a Doctor's degree or give evidence of published work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

In case where specialisation has not been mentioned against a post, candidates should state their areas of specialisation at the Master's and Doctor's degree levels.

Higher initial pay may be offered to specially qualified candidates in suitable cases.

Applications in plain paper in quadruplicate giving full bio-data including (1) Name in full (in block letters). (2) Father's name (3) Date of birth by the Christian era (4) (a) Permanent residence and address (in full) (4) (b) Present address (in full) (5) Present occupation if any and name of employer, (6) Present salary drawn (if any) (7) Detailed academic career with marksheets and subjects studied (including Hons) in Degree and post-graduate courses from Matriculation/Higher Secondary Examination/High School Leaving Certificate Examination onwards and copies/reprints of research contributions (8) Name and address of two referees not related to the candidate together with an application fee of Rs 10/- (Ten) & (Rs. 7.50 in the case of Scheduled Caste/Scheduled Tribe candidates) by **CROSSED INDIAN POSTAL ORDER** drawn in favour of the Gauhati University payable at Gauhati-781014 post office should be sent in an inner sealed cover superscribed "APPLICATION FOR THE POST OF (name of the post applied for) ADVERTISE-
MENT NO 9 OF 1976" enclosed in an outer cover addressed to Shri K.C. Bhattacharyya, M.A., Registrar, Gauhati University, Gauhati-781014 to reach him not later than 31st August, 1976

The number of this advertisement and name of the post applied for must be referred to in the application. Persons in employment should apply through proper channel or with a no objection certificate from the parent employer.

Candidate will be required to appear at interview if and when called for.

TECHNICAL TEACHERS' TRAINING INSTITUTE (Southern Region) Adyar, Madras 20

Advertisement No. EII 2 76

Applications are invited in the prescribed form for the undermentioned posts, from the qualified candidates

(1) **Professor-in-charge of Extension Centre:** (Temporary but likely to continue) Scale of pay: Rs 1500-60-1800 **Qualifications Essential:** (1) Masters Degree in Engg./Technology of any recognised University in India or abroad. (2) Experience of not less than 15 years in teaching industry of which at least 5 years shall be in a teaching position of a rank not less than that of an Asst. Prof. in an Engineering College/Teacher Training Institute or Head of Dept. in Polytechnics. **Desirable:** (1) A Degree or diploma or a certificate in teacher education. (2) Experience in a responsible position in industry. (3) Experience in organising inservice training programmes for teachers. Age: 35 to 48 years.

(2) **Asst. Prof. of Education:** Scale of pay Rs. 1100-50-1600. **Qualifications Essential:** (1) A good degree in Engg. of any Indian or Foreign University. (2) Pro-

fessional Experience in the corresponding field for a period of not less than 7 years of which at least four years should be in a responsible teaching position in a recognised Polytechnic or Engg. College. (3) Must have undergone a course in technical teacher training either in India or abroad. **Desirable:** Experience as a teacher in a teacher training institution, with ability to organise and supervise practice teaching programmes and audio-visual laboratory. Age: 35 to 45 years.

(3) **Asst. Prof of Civil Engg: (*)** (Temporary for one year only). Scale of Pay: Rs. 1100-50-1600. **Qualifications Essential:** (1) A good degree in Civil Engg. of any Indian or Foreign University. (2) Professional experience in the corresponding field for a period of not less than 7 years of which at least 4 years should be in an Engineering College. **Desirable:** Preference will be given to those who are holding Master's Degree and those who have undergone a course in Tech. Teacher Training. Age: 30 to 40 years.

(4) **Lecturer in Elec. Engg (*)** (Temporary) (Reserved for SC. But other candidates can also apply. In the event of non-availability of SC candidates, other candidates will be considered). Scale of pay: Rs 700 40-900-EB-40-1100-50-1300 **Qualifications Essential:** (1) A good degree in Elec Engg (2) Experience in Teaching or in industry for 3 years. **Desirable:** Preference will be given to those who have undergone Tech. Teacher training and those who are holding Master's Degree Age: 25 to 35 years.

(5) **Engineering Assistant** (Reserved for SC) Scale of Pay Rs 550-25-750-EB-30-900 **Qualifications Essential:** (1) A Degree in Electronics or Telecommunication of a recognised University or Equivalent (or A diploma in Electronics/Telecommunication Engineering. (2) One year actual working experience in the case of Degree holders, 5 years of experience in the case of Diploma holders in the field of Electronics. **Desirable:** A sound knowledge of maintenance and fault finding of various Electronics equipments. Specialisation or actual working experience in the field of Television preferred. Age: Below 35 years.

Application forms and other details can be had from the Principal of the Institute on requisition with a self-addressed envelope (23 x 9 cms) duly affixed postage stamps of the value of 40 paise. Applications completed in the prescribed form should reach the Principal on or before August 23, '76.

(*) Those who have applied in response to our earlier advertisement (No.EII/1/76, dt. 25.4 '76) for the posts No. 3 and 4 need not apply again. Their applications will hold good for this advertisement also.

PRINCIPAL

HIMACHAL PRADESH UNIVERSITY, SIMLA-171005 Recruitment Branch Advertisement No. 11/76

Applications on the prescribed form (obtainable free of cost by sending a self addressed stamped envelope size 23x10 cms) are invited for the following posts: **Pay Scales and Essential Qualifications:**

For Sl. No. 1 & 2: in the pay scale of Rs. 1100-50-1300-60-1600 plus usual allowances as admissible under the University rules—shortly to be revised to Rs. 1500-2500.

Ph.D. or an equivalent degree; five years post-graduate honours teaching or five years post-doctoral research in a University or a Research Institute; and distinguished research work.

For Sl. No. 3: in the pay scale of Rs. 900-50-1150, 50-1300 plus usual allowances as admissible under the University rules. The appointee will not be allowed private practice, but entitled for non-practising allowance at the rate of 33-1/3%. If the service is more than 10 years will be entitled at 50% of his basic pay subject to maximum of Rs. 600/-. The appointee shall have to join duties either at Palampur station or at Simla.

A recognised medical qualification included in the First or Second Schedule or Part II of the Third Schedule (other than licentiate qualifications) to the Indian Medical Council Act, 1956. Holders of educational qualifications included in Part II of the Third Schedule should also fulfill the conditions stipulated in section 13(3) of the Act *ibid*.

The Candidates should possess five years experience after registration as Medical Graduate.

Desirable: Knowledge of customs, manners and dialects of Himachal Pradesh.

For Sl. No. 4 to 13: in the pay scale of Rs. 700-50-1250 plus usual allowances as admissible under the University rules, shortly to be revised to Rs. 1200-1900 for posts at Sl. No. 4 to 11

Ph.D. or an equivalent degree; two years post-graduate honours teaching or post-doctoral research in a University or a Research Institute; and distinguished research work.

For Sl. No. 14 to 23: in the pay scale of Rs. 400-40-800-50-950 plus usual allowances as admissible under the University rules—shortly to be revised to Rs. 700-1600 for post at Sl. No. 23.

Ph.D. or an equivalent degree in the subject Or First Class in all Board and University examinations from High School/Higher Secondary examination upto the Master's degree in the subject with M.Phil or an equivalent degree Or Second Class Bachelor's degree and Second Class in the Master's degree with M.Phil or an equivalent degree.

For Sl. No. 24: in the pay scale of Rs 400-950 plus usual allowances as admissible under the University rules.

Qualifications: Graduate.

Experience: Should be a retired Commissioned Officer of Indian Army or of the Police (Retired or Serviceman).

Age: Between 30 to 45 years.

For Sl. No. 25: in the pay scale of Rs. 300-20-420 plus usual allowances as admissible under the University rules.

Essential Qualifications: A good B.Sc. degree with Physics.

Desirable: The candidate should be able to use and maintain the Physics Laboratory Electronic and Nuclear test equipment such as Cathode Ray Oscilloscopes, Oscillators, V. T. V. M's, multimeters, power supplies and electronic counters, and Analysers, Thermostatisovens, incubators, potentiometers, rheostates etc.

Age: Between 18 to 30 years.

Categories of Posts:

1. Professor in Political Science.
2. Professor in Physical Chemistry.
3. Medical Officer (G.D.O.I.)
4. Associate Professor of Mathematics with specialisation in Fluid mechanics, Solid mechanics, Plasma Physics, Algebra, Analysis, Topology, Numerical analysis, Functional analysis, Differential geometry.
5. Associate Professor of Physics in any branch of Experimental Physics preferably with Electronics
6. Associate Professor of Physics (leave vacancy for one year)
7. Associate Professor of English with specialisation in Drama Comparative literature.
8. Associate Professor of English with specialisation in Novel/Poetry/Renaissance.
9. Associate Professor of Sanskrit.
10. Associate Professor of Music.
11. Associate Professor of Business Administration.
12. Associate Professor of Agronomy.
13. Associate Professor in Forestry. **Desirable:** Experience in Forestry, Botany or Forest Genetics or Forest Chemistry or Silviculture.
14. Junior Virologist.
15. Assistant Extension Specialist (SM) in any discipline of Agronomy, Plant Protection, Horticulture, Animal Science, Soil Science.
16. Research Officer (Statistics) in Forestry. **Desirable:** Experience in designing experiments on trees.
17. Assistant Analytical Chemist. **Desirable:** Ph.D. or Experience of chemical evaluation on forage crops.
18. Assistant Agronomist (Forage production). **Desirable:** Ph.D. or experience in Forage crop research.
19. Assistant Agronomist (Rice). **Desirable:** Ph.D. or three years experience in Rice agronomy.
20. Assistant Rice Breeder. **Desirable:** Ph.D. or experience on Rice breeding.
21. Assistant Maize Breeder. **Desirable:** Ph.D. or experience in maize breeding.
22. Assistant Professor in Hindi in the Agricultural complex.
23. Assistant Professor of Business Administration.
24. Security Officer.
25. Laboratory Technician in the Department of Physics.

Particulars of specialisation should be supported by published work.

Higher start in the grade is admissible on the basis of special qualifications and experience.

The Executive Council, may, if necessary, relax the qualifications on the recommendation of the Vice-Chancellor or the Selection Committee, as the case may be.

A person applying for more than one posts should send a separate application for each post.

Retirement Benefits:

Either Contributory Provident Fund-cum-Gratuity (with 8-13% subscription by the employee and 8% contribution by the University) or G. P. Fund-Cum-Pension-cum-Gratuity as per Central Universities Retirement Benefits Rules, 1967, as published by the U.G.C., 1970

Persons from outside India may send their applications on plain paper giving particulars of date of birth, examinations passed (from High School onwards) with division and percentage of marks obtained in various public examinations research experience with a list of publications indicating the names and volumes of the journals in which published, teaching, any other experience and name with complete postal addresses of two distinguished scholars who may be knowing fully about the work of the candidate and one of whom must be the Head of the Institution last served

Applications complete in all respect, (alongwith the attested copies of all the examinations passed from High School onwards) together with a crossed postal order of Rs. 7.50 (not applicable in case of those applying from outside India) drawn in favour of the Finance Officer, Himachal Pradesh University, Simla-171005, should reach the undersigned by the 21st August, 1976 positively under registered cover.

Incomplete applications and which are received after the due date may not be entertained.

D. C. Pant

Officer Incharge Recruitment

Dated: July 27, 1976

UNIVERSITY OF INDORE INDORE

University House, Indore-1
No. Estt.III(9) 76 Dated 27th July, 1976
Advertisement

Applications are invited for the following posts in the University Teaching Departments:

Department	Number of Posts		
	Professor	Reader	Lecturer
Physics	—	—	2
Chemistry	—	1	3
Life-Sciences	1	2	2
Mathematics	—	1	2
Statistics	1	—	1
Education	—	—	2
Business Management	—	—	1
Economics	1	1	2

Qualifications & Pay Scales:

(a) Professor: Rs. 1100-50-1300-60-1600.

(i) A first or second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the subject concerned.

(ii) Either a degree of the doctorate standard or published work of high standard.

(iii) Not less than 10 years experience of Post-graduate teaching and experience of successfully guiding research.

In the case of a candidate of exceptional merit the Executive Council may, on the recommendations of the Selection Committee and with the prior approval of the Kuladhipati, relax any of the qualifications mentioned in (i), (ii) & (iii) above.

(b) Reader: Rs. 700-50-1250.

(i) & (ii) same as for Professor with post-graduate teaching experience of five years and three years experience of guiding research. Working knowledge of Hindi shall be desirable qualification.

(c) Lecturer: Rs. 400-40-800-50-950

Qualifications shown at 2(a)(i) for the post of Professor. A research degree in the subject or experience of teaching degree and or post-graduate classes will be desirable qualification. Knowledge of Hindi will be desirable.

NOTE:

(1) For one of the posts in the Department of Chemistry specialisation in Organic Physical Textile Chemistry will be preferred

(2) In the Department of Life Sciences specialisation in one or more of the following branches will be preferred.

(i) For the post of Readers—Microbiology, Cell Biology, Photobiology Radiation Biology having experience of working with ESR

(ii) For the post of Lecturers—Ecology, Cell Biology, Photobiology and Microbiology

(3) For Business Management Department the concerned subjects would be Business Management or Administration / Engineering / Commerce/Economics

(4) For the post of Professor Reader in the Department of Economics specialisation in Econometrics/Economic Statistics/Mathematical Economics will be preferred, and for the post of Lecturer the preference will be for Industrial Economics.

3. The above scales carry with them dearness allowance and the benefit of Contributory Provident Fund in accordance with the rules of the University.

A higher start can be given to deserving

(Continued on page 15)

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from Periodicals received in AIU Library during June, 1976

EDUCATIONAL PHILOSOPHY

Heath, Douglas H. "What the enduring effects of higher education tell us about a liberal education" *Journal of Higher Education* (Ohio) 47(2), Mar-Apr 76: 173-90

EDUCATIONAL PSYCHOLOGY

Eljah, A. M. "Evolution of synoptics seminars in India" *Creativity Newsletter* 4(2) & 5(1), Aug 75 & Feb 76: 14-30

Entwistle, Noel and Hounsell, Dai. "How do students learn?" *Times Higher Education Supplement* (241), 4 June 76: 15

Rao, Indumati and Rao, C. N. R. "Creativity in the classroom" *Creativity Newsletter* 4(2) & 5(1), Aug 75 & Feb 76: 1-5

EDUCATIONAL SOCIOLOGY

Chinnai, Suma. "Education of the scheduled castes" *Journal of Higher Education* (Delhi) 1(2), Autumn 75: 167-78

"Education free of all discrimination" *Teachers of the World* (1), 76: viii

Sabherwal, Satish. "Education, inequality and industrialization" *Journal of Higher Education* (Delhi) 1(2), Autumn 75: 189-97

Starrop, Richard and Grunberg, Michael M. "Rewards of research" *The A. S. Universities Quarterly* 30(2), Spring 76: 227-35

EDUCATIONAL PLANNING

Hencke, David. "Teacher supply: A case of miscalculating" *Higher Education Review* 8(1), Autumn 75: 17-31

Ford, Dorothy. "Hurdles of departmental planning" *Times Higher Education Supplement* (238), 14 May 76: 9

"Forecasting: planning takes second place" *Times Higher Education Supplement* (237), 7 May 76: 7

"Manpower planning: the U. G. C. and the universities" *Times Higher Education Supplement* (239), 21 May 76: 11

EDUCATIONAL ADMINISTRATION

Iswara Reddy, V. and Potha, D. R. "Areas of conflict in the Indian university system: A note" *University Administration* 2(1&2), Jan-Dec 75: 29-31

Khat, Abdul Ravees. "Legal status of university employees" *University Administration* 2(1&2), Jan-Dec 75: 66-70

Mc Connell, E. R. "Coordinating higher education" *Higher Education Review* 8(1), Autumn 75: 45-58

Pollay, Richard W. and others. "Model for horizontal power sharing and participation in university decision making" *Journal of Higher Education* (Ohio) 47(2), Mar-Apr 76: 141-57

Rao, M. R. and Raju, V. B. "University post-graduate centres: A case for decentralisation of university administration" *New Frontiers in Education* 6(1), Feb 76: 23-8

Singhal, Sushila. "Organisation and functioning of universities in India" *Journal of Higher Education* (Delhi) 1(2), Autumn 75: 223-40

"TOO MANY teachers - or too few?" *Economic and Political Weekly* 11(22), 29 May 76: 798-800

Tripathi, S. K. "Book banks" *Yojana* 20(8), 15 May 76: 10, 15

CURRICULUM

Hofman, Bert. "Social sciences in the medical faculties: Background, benefits and problems" *Higher Education and Research in Netherlands* 20(1), Winter 76: 9-13.

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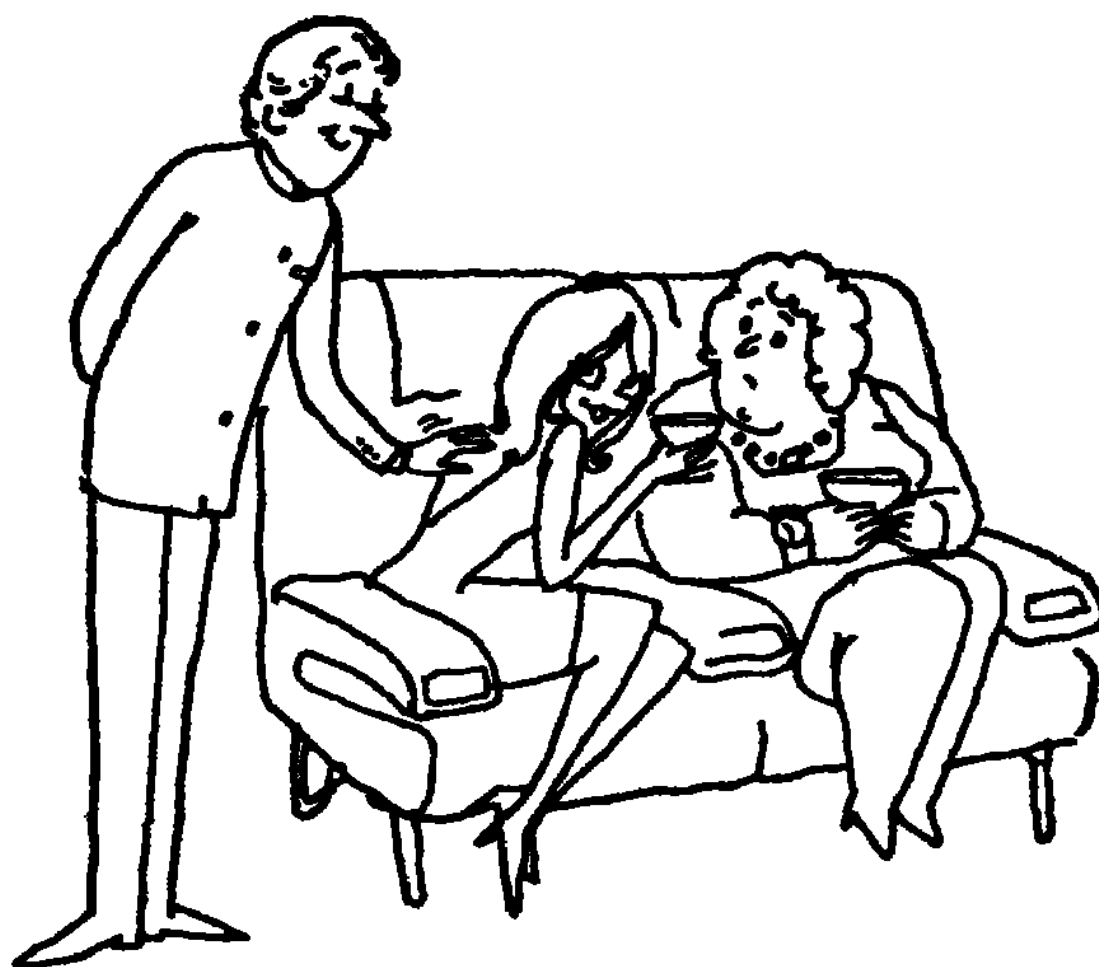
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University

A CHRONICLE OF HIGHER EDUCATION & RESEARCH SEPTEMBER 1976 Re. 1.25



Prime Minister, Smt. Indira Gandhi, addressing the Vice-Chancellors of Agricultural Universities in New Delhi

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF DELHI

Advt. No. Estab. IV/36/76

Applications on the prescribed form are invited for the following posts :

Sr. No.	Department	Designation
1.	African Studies	One Professor
2.	Political Science	One Professor
3.	Linguistics	Two Readers
4.	Economics	One Lecturer (Temp. upto 27-7-1977)
5.	Faculty of Music & Fine Arts	Two Part-time Tutors
6.	Zoology	Two Technical Assistants
7.	University Press	One Assistant Manager
8.	Psychology	One Technician
9.	Modern European Languages	Four Senior Technical Assistants (Two for Russian, One each for German and French Languages)

The Scales of Pay of the posts are :-

1. Professor	Rs 1500-60-1800-100-2000-125 2-2500.
2. Reader	Rs. 1200-50-1300-60-1900.
3. Lecturer	Rs. 700-40-1100-50-1600.
4. Part-time Tutor	Honorarium (Fixed without any other allowance whatsoever) of Rs. 500 - p.m. for workload ranging from 3-6 hours per week Rs. 750 - p.m. for workload ranging from 7-10 hours per week.
5. Technical Assistant	Rs. 425-15-500-FB-15-560-20-700
6. Assistant Manager (Press)	Rs. 650-30-740-35-810 LB-35-880-40-1000-EB-40-1200
7. Technician	Rs. 550-25-750-EB-30-900.
8. Sr. Technical Assistant	

All posts (except Part-time Tutors) carry D.A., C.C.A. and H.R.A. as admissible under the rules in force from time to time.

1. ESSENTIAL QUALIFICATIONS FOR :

- Professorships :** A Scholar of eminence. Independent published work of high standard and experience of teaching Post-graduate classes and guiding research for a considerable period desirable.
- Readerships :** Good academic record with first or high second class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work. Independent published work (in addition to the published work mentioned above) with at least 15 years' teaching experience in Honours Post-graduate classes essential.
- Lectureships :** Essential : Consistently good academic record with a First or high Second class (B-) Master's Degree or an equivalent degree of a foreign University in the subject concerned.

Desirable : (In order of preference)

- A Doctor's Degree or Evidence of research work of equivalent standard in the subject concerned.
- Teaching experience of Degree Post-graduate classes.

Provided that if a teacher is not a Ph.D. at the time of his/her appointment and does not qualify himself for the award of a Ph.D. Degree from a recognised University in the subject which is being taught by him/her within the period of five years from the date of his/her appointment or does not give evidence of research work of equal standard within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of five years till such time he/she fulfils the above mentioned requirements.

- Part-time Tutors :** Good academic record with first or high Second Class Master's Degree in Music and proficiency in performance.
- Technical Assistants in Zoology :** Graduation in Science. Experience in Lab. Techniques of the subject.
- Assistant Manager (University Press) :**
 - At least a Diploma in Printing and Allied Trades from a recognised Technical Institute in India and abroad.
 - About 10 years' experience in a responsible capacity in a well-established printing house, including about five years in a Supervisory Capacity.
 - Age limit : Preferably below 45 years.
- Technician :** Must be a Science graduate of a recognised University.
- S. Technical Assistants :**
 - Bachelor's Degree.
 - Advance Diploma in Language concerned with Distinction.
 - Well experience in handling Audio-Visual aids, knowledge of script

writing and have training in a recognised language laboratory. (4) Good knowledge of typing in the language concerned.

II. SPECIAL DESIRABLE QUALIFICATIONS FOR

- Professorship in Political Science.** Specialization in Indian Politics. Background in Modern political Analysis and Research Methodology.
- Readerships in Linguistics** Specialization and research interest in Experimental Phonetics and Acoustics Theoretical Linguistics Generative Phonology.
- Part-time Tutors** An eminent performing Musician having a wide knowledge and practical scholarship, combined with ability to impart training to classes up to Post-graduate level.
- Technician :** Diploma in Electrical Electronics with two years experience.
- Sr. Technical Assistants :**
 - Some experience of handling books in Foreign Languages or experience in documentation publication work.
 - Good knowledge of typing foreign languages other than that concerned.
 - Candidates will have to appear in written test in the language concerned.

The prescribed application form can be had from the Information Office of the University either personally or by sending a self-addressed envelope (S.A.E.) with postage stamps worth Rs. 12.55.

Selected candidate will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Application (separate for each post) accompanied by attested copies of Degrees, other certificates, published research article etc. should reach the undersigned, not later than **11th September 1976**.

NOTE 1 It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation in any of the qualifications may be made in exceptional cases, in respect of all posts on the recommendations of the Selection Committee.

2. Canvassing in any form by or on behalf of the candidate will disqualify.

3. Candidates from outside Delhi for the teaching posts, called for interview will be paid contribution towards travel expenses equivalent to 14 single second class Rail fare.

Delhi 110007
13.8.1976.

Registrar
University of Delhi

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Opinions expressed in the articles and reviews are individual and do not necessarily reflect the policies of the Association.

Editor : ANJNI KUMAR

Information Service in Universities

Just as the knowledge contained in our sacred scriptures cannot reach the common man without proper recital or preaching so the results of the public utility researches conducted in our universities can't reach the common man in the remote areas without a strong information service. In fact, information is the soul of an activity. An activity, howsoever interesting and useful it may be, cannot interest a common man without proper publicity support. It may be noted that the information support presents the clear-cut picture of different achievements on one hand and highlights the image of the concerned organisation on the other.

It is an admitted fact that teaching, administering and research reporting as well as routine functions of a University depend on communication. Dr Chandran D. S. Devanesen, Vice-Chancellor of North-Eastern Hill University while addressing the Vice-Chancellors of the Himalayan Mountain Region at Shillong had rightly said: 'A University must cater to the bodies, minds and souls of all those who come in contact with 'it'. In the same sequence Dr. Devanesen sums up 'The art of communication is an essential aspect of the pedagogical responsibility of an university and we can wed the traditional forms with the modern scientific and technological mass media to change the minds and outlook of the people so that they understand and sympathise with the need for social and economic transformation. Thus, it may be concluded that a strong information service is essential for bringing the desired change in the outlook and thinking of the people.

Widespread public support for an University's programme depend upon the favourable impression it has been able to exert on a common man. A strong information service is vital for rapid and efficient dissemination of the information and creating much an impression. It may be noted that an effective information service is the agency through which an University can disseminate information most widely and economically. Some of the advantages of information unit may be summarised as below:

- carries the research and other activities to the prospective beneficiaries for rapid social and economic development to promote the welfare of the people.
- highlights the image of the University and keeps the sister organisations well informed about its activities.
- brings the work of meritorious and efficient students and staff members to the lime-light and thereby creates a congenial atmosphere within the university campus.
- * provides specialised service to the university in respect to the publications, public relations, press liaison and advertising, etc.

LIBRARY

(Contd. on page 7)

Restructuring the University System

T. K. KOSHY*

The structure and composition of universities as they are available today have been modelled on the civil administration. In some context of history such a system was introduced and it continues. Nobody had cared to examine at any stage whether this is the system which a university should have. With the birth of democracy as different political institutions were made more and more representative, the same tendency crept into the university system also. Those responsible for framing laws for the university were also unknowingly guided by this tendency. The special feature of university as a community of teachers and students striving for the acquisition and advancement of knowledge distinguishes it from other forms of organisation. In the background of the special nature of its objective, the composition and working of its administrative system also should be different. It is unfortunate that this aspect has not been taken care of by successive legislators who modified university acts several times.

The extent to which the above-mentioned parallelism is stretched is almost staggering. Thus in the place of the Chief Minister, the Vice-Chancellor is the Head of the university, in the place of the Cabinet, the Syndicate is the executive authority of the university, in the place of the Assembly, the Senate is the legislative council of the university. The paraphernalia is increased unconsciously by placing a separate body to legislate on academic matters, i.e. Academic Council over and above 30 to 40 Boards of Studies. In its composition and working these bodies do not serve the real needs of the university. To cite just one anomaly there is provision for 12 members to the Senate from among the registered graduates. It is incomprehensible as to what peculiar status a person who registers as a graduate of the university by paying Rs. 20 gains so as to merit separate representation in a university Council. Somewhere in the past, when the number of graduates was small some provision was made to this category. But it is definitely anachronistic now to continue this.

So also in the composition and the membership of the various bodies the real needs of the institution and the reasonable number to transact effective work have not been taken care of. A generous attempt has been made to give representation to several types of interests and organisations. The result is that the Senate and the Syndicate in its present composition and nature is least capable of giving any substantial contribution to academic management or transacting any effective work.

*Registrar, University of Calicut.

It is high time that the people who guide the future of states and universities think deeply about this problem and make an earnest effort to make the university system effective to deal with the problems it faces and give it a system of administration that is suited for its special needs. What is required in the university system is deliberation by experts on each of the special problems it has to deal with. Universities need expert deliberative councils which can offer sound advice and guidance. For that matter, the problems that the universities deal with are of such a specialised nature that expert advice and consultation is an invariable component of the university system. It is also true that no one expert can suggest solution to all the problems the university has to deal with. Anybody cannot be considered or nominated as an expert in such matters. So on each of the problems of management or issues that come up, adhoc expert bodies have to be constituted to advise the administration. It is not the principle of democratic representation that is relevant to university administration, but provision to make available expert knowledge and advice is the basis of a strong university structure. The university system, its composition and structure, should be so arranged that this expertise is made available to the Vice-Chancellor who on the advice of these expert bodies should have wide powers of execution. In a university system, depending on the nature of its work and demands on it, a Vice-Chancellor should be like the American President and not like the P.M. of the Indian or British system of democracy. The Vice-Chancellor should have sufficient powers to manage the affairs of the university and he should not be unnecessarily harassed or controlled by the so-called representative bodies. What is relevant in university governance is management of affairs of the university with academic vision and administrative expediency. In the management of academic affairs, democratic control is irrelevant. After all, there are no apparent democratic principles involved in preparing syllabi for various universities, in deciding on the number of staff required for a university department, in deciding on the basis on which a university department should develop or specialise in allocating the total fund of the university, within the various departments of the university, in the selection of teachers on merit and according to rules laid down, in fixing the qualifications of teachers and the hundreds of similar issues that a university is called upon to manage. In short, the basis for deciding the composition and structure of a university is not democratic representation alone but it should be based on expert advice and experience. The

attempt should be to evolve a system in which effective deliberation by experts in the connected field is made possible.

For effective working of a system like the university, the overall administration of the university shall be the responsibility of the Vice-Chancellor and he shall have wide powers in the management of the affairs of the university. Only expert advisory bodies of an adhoc nature are necessary to help him and they shall not sit upon the neck of the Vice-Chancellor preventing him from doing whatever he feels is best for the university. If such a composition and structure is modelled for universities the university can make progress with able and competent Vice-Chancellors who have academic vision and administrative expertise. After all, the term of a Vice-Chancellor is only four years. Given the time and freedom in a setup as outlined above, competent people can do much for the progress of the university.

It is therefore imperative that composition and structure of universities should be drastically modified with special reference to the nature of its demands.

An examination of the present structure encourages one to suggest the following modification:

At present the Senate is the largest body representing all odd elements where no useful work can be transacted. It is a place where the more vocal elements gain control of the house and many relevant and irrelevant things are merely talked out. No useful work is transacted, no enlightened discussion comes in, no original ideas appear enabling the university to traverse on new paths. Routine items which are to be statutorily presented to the Senate are presented and passed. The waste of time, energy and money on this exercise calls for serious consideration whether a Senate of the type and size is necessary for a university. Examined from the nature of its demand, this is evidently unnecessary. So too is the Academic Council with its large membership. No serious academic discussion takes place there and issues are not tackled from a purely academic point of view. Even granted that the Academic Council should continue, this again needs a drastic change in its composition. The Syndicate is the only effective body at present which transacts some serious business. But the recent inflation in its membership and the change in the nature of its composition gives one serious doubts about the contribution it can give to the university system. There are also about 40 Boards of Studies consisting of 9 to 11 members each representing each subject. There are faculties consisting of 10 to 13 members. There are many such faculties. Experience does not justify their continuance. Actually the work done in these Boards or Faculties is the result of the labour of two or three people. The work of these bodies can therefore be very easily done by some adhoc committees of experts nominated by the Vice-Chancellor as and when issues come up.

It therefore appears that in the new set up for the universities the Vice-Chancellor should be given the ultimate authority and responsibility in guiding the problems of the university. He must be given the freedom to constitute adhoc committees of experts to advise him on the problems that he wants advice. There can be an Executive Council consisting of not more than ten members. In its composition care has to be taken to ensure that really competent people with academic and administrative experience come into the Syndicate. While the Senate may continue, in its composition there should be drastic change and its membership should be reduced to about forty. Membership to the Senate has to be limited to academics and other persons eminent in public life who can be of real help in moulding the policies of the university. They must be really top people, with stress on academicians, representing various groups of teacher and academic administrators.

In deciding on the powers and functions of the Vice-Chancellor, the Executive Council and Senate, care has to be taken that the initiative and freedom of action of the Vice-Chancellor is not impeded by the other bodies which at least in certain spheres should be limited as advisory bodies. In the light of these suggestions, the following further suggestions on the composition of the Executive Council and Senate may be examined.

Syndicate: The Syndicate shall consist of eleven members viz. (1) Vice-Chancellor, (2) Pro-Vice-Chancellor (3) one university teacher nominated by the Vice-Chancellor on the basis of yearly rotation from among the Professors, Readers and Lecturers of the university (4) One Principal from Govt. college elected from among themselves (5) One Principal from affiliated colleges elected from among themselves (6) One teacher of an affiliated private college elected from the members of the Senate (7) One Principal representing the professional college elected from among the Principals of professional colleges (8) One teacher from Govt. college elected from among themselves (9) Education Secretary (10) Director of Collegiate Education and (11) One eminent public man nominated by the Chancellor.

Senate: Senate shall consist of thirty four members, of whom (1) 4 shall be Principals elected from among the Principals of all affiliated colleges (2) 4 teachers from the affiliated colleges other than professional colleges (3) two teachers from Professional colleges, one each from Engineering and Medicine (4) Four university teachers elected from among themselves (5) One member of the non-teaching staff of affiliated colleges elected from among themselves (6) 4 students elected by an electoral college formed by elected representatives of the students from various colleges (7) two directors of research institutes outside the university nominated by the Vice-Chancellor (8) two managers elected from among themselves (9) five members nominated by the Chancellor representing people who have distinguished in the field of Medicine, Engineering,

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Higher Education in Australia

S. Santanagopalan*

Deputy Registrar, Madurai University

The last few years have seen an unparalleled development in the facilities for tertiary education in Australia, with educational opportunities increased not only by the provision of more places, but also by the provision of different kinds of places. The intending tertiary student in Australia has a choice far wider than ever before.

Secondary studies in Australia usually extend over five or six years (preceded by six or seven years of primary schooling) and students are about seventeen years of age when they have completed this stage of their education. At the end of the secondary courses students may sit for a public examination which is normally used as the entrance examination to tertiary education. Such examinations are presently under review, and one State, Queensland, has abandoned the external public examination system in favour of continuous assessment within the schools.

Tertiary institutions in Australia commence their academic year in either February or March and it is divided into either three terms or two semesters. Applications for enrolments, however, are usually required in about October or November of the preceding year. Students awaiting Australian public examination results may not have to apply until later.

An overseas student wishing to enrol in any Australian institution should be prepared to produce evidence of qualifications already obtained proficiency in speaking good English or to undergo a test of his command of English.

We can have an idea of the development of University Edu-

cation in Australia by comparing the number of Universities and places available there before 75 years and now. Before 75 years, there were 4 Universities in that country and by 1950 there were eight Universities. In 1975, there were 18 Universities including with the two new ones. Besides there were 85 Colleges of Advanced Education and 19 other institutions which offered courses financed by the Federal Government. The student enrolment in 1954 was 29,000 and this has been raised to 1,43,000 in 1974. In 1975, the student population of all the Universities in Australia was 1,48,000. That is, an increase of about 5,000 students over the last two years.

There appears to be a rapid growth in the enrolments in the Universities early in 1960. As a result of the development of Colleges of Advanced Education and the encouragement given by the Government in tertiary education, the University enrolments have begun to decline in proportion to the total tertiary enrolments. Though there is increase in the number of places in the Universities, the present trend appears to be more favourable towards admission to colleges of Advanced Education and Teachers' Colleges.

Admissions to Universities are based purely on merit and some of Universities have a centralised system of admissions in one or two States: New South Wales and Victoria. There is a great demand for medical education, then comes Law, then Arts and Science and Engineering etc.

Law course is attracting many in some Universities. They are encouraged to take combined course in Arts and Law. This

not only widens their education and understanding, but also enable them to study the society from a point of view outside the legal scholarship. It is learnt that the Bar Council of India is not now in favour of having such combined course. Law leads into all areas of society, particularly the social sciences. The broader the lawyer's education, the better lawyer he is likely to be and this reason has made the Universities in Australia to have the combination of Law and Arts.

In Australia all the universities are almost entirely financed by the Federal Government and the grants for the developments are given by the Government based on the recommendations of the U.G.C. for each triennium, i.e. for three-year periods.

One of the salient features of the development of Australian Universities is that they provide multidisciplinary and interdisciplinary studies and carry on problem-oriented research. Thus they cut across the traditional disciplinary division and bring about the perspective of a variety of expertise knowledge. All researches are done in the national interest and this work is done in collaboration with other research organisations like Council of Scientific and Industrial Research and Organisation Academies etc. The choice of research projects are based on national utility and all the projects are completed within a reasonable period so that the study may be useful.

One of the important features of the interdisciplinary programme of study is the introduction of courses on 'Human Sciences' which includes Human Biology, Human Ecology and Human Adaptability and this course is offered jointly by the faculty of Arts and Sciences. This is designed to guide the students and to give them opportunities to learn the integrated understanding of man's current state of adaptation to his environment.

*The author visited Australia recently on ACU Administrative Travelling Fellowship.

Some of Universities established in recent years, say within the 10 years, deviating from the traditional academic pattern have laid emphasis that there should be no division between Arts, Sciences and Social Sciences and with a view to encourage the interdisciplinary approach, students should be allowed as much flexibility as possible in their choice of the subjects of study.

There is provision for the students to qualify for a useful professional diploma courses while undergoing study for the degree, like the diploma course in electronics, education, environmental studies, geo-science, urban studies, business administration, community studies, counselling, monetary economics etc.

Courses provided in the University are designed to promote in students a spirit of critical appreciation. Students have to take pains and study for themselves. New facts and theories are introduced and it is for them to assess their importance.

Library is one of the most important landmarks in each University. The libraries work for more than 83 hours per week and liberal borrowing facilities are provided for the students. Library provides a quiet atmosphere, comfortable accommodation and many books to enable the students to pursue their studies. University education in that country can be considered as complete only when a student acquires an intimate knowledge of the services which the library offers and an ability to use them with profit. In fact, library facilities are superb and books for over-night study can be borrowed. There is open access system and of course there is loss of books. No one bothers about the loss, because, they seem to think that this is an indication that the books are put to much use. One is penalised for the loss. However, earnest efforts are taken as far as possible to recover the books lost. The library is humming with activity. Zerographing machines, microfilming facilities are

provided and they work on coin-operation system.

One of the significant and modern libraries is functioning in the oldest University in Australia at Sydney. One important feature is the provision for students and staff a music room to listen to language literature and music records. There is perfect silence in this room, because, each is provided with ear-phone. This is supposed to be largest University library in Australia — The Fisher Library.

Venue of all academic and cultural activities of the people is the campus of the Universities. The public come to the University and see for themselves what the Universities are doing. The community establishes the Universities and the Universities serve the community. There is a sort of feedback. The people and the Government of the country show great interest in the development and expansion of education and this paves the way to the prosperity and economic growth of the nation.

Information Service in Universities

(Contd. from page 3)

Thus a strong information service should form an integral part of the university.

Our Agricultural Universities have done pioneering work in this regard. As for example, Pantnagar Agricultural University has a full-fledged Communication Centre. The university is going to launch a UPDP supported project on Centre of Excellence in communication for Rural Development which would be unique of its kind in Asia. The Central Universities too seem to be conscious of the fact. But the State Universities had been lagging behind in this field. It is high time that the utility of a strong information service is realized at the earliest in this era of satellite communication. The founders of the new modern universities should envision the broadest possible horizons for the future of their institutions. They should make provision for a well-conceived basic information service which can grow as the University develops. It is advisable to develop a staff of communication specialists who can put all their talent, skill and energy with the job of building an information service capable to meet the needs of the people and the University.

An ideal information unit is expected to perform the following functions:

- To prepare and issue the news releases and features for publication in different newspapers and broadcast from All India Radio.
- To arrange the visit of press, radio, film and tele-

vision personnel from time to time. This will help in carrying the messages of development to the remote corners of the country.

- To publish special supplement in leading newspapers on important occasion i.e. Convocation, Founders Day or special functions. This will help in securing larger peoples' participation.
- To bring out the University Newsletter and other publications for public information.
- To release the university advertisements for publication after proper type and space marking. This will save the university from unscrupulous advertising agencies and also additional expenditure due to the unfamiliarity of the other departments about the printing requirements.

The beginning information service of any university should consist of one man's performance. It is important to note that the broadscope of the activity would require a wide range of ability, training and experience. The University administration should try to find a man suitably qualified for the job. A compromise at this stage may permanently jeopardise the growth and effectiveness of the information service. Gradually the university will need an increasing volume of special printed material and publications. As the volume of work increases, the information service should be strengthened with the appointment of supporting editorial staff, photographer and artist etc. This is an ideal and self-supporting arrangement.

The author, P. P. Pande, is the Editor in G. B. Pant University, Pantnagar.

Agricultural VCs meet the Prime Minister

The Indian Council of Agricultural Research convened a two-day conference of agricultural universities on 6th and 7th August, 1976 at New Delhi. The Vice-Chancellors later called on the Prime Minister.

Prime Minister, Smt. Indira Gandhi, advised the Vice-Chancellors to identify programmes and strategies needed to enhance the environment's ability to support a high standard of living of the people. She said that agricultural universities should help to create a spirit of cooperation and responsibility not only in their students but in the farmers and villagers as well. She wanted the agricultural universities to undertake measures for identifying low cost energy sources, prevention of soil erosion, recycling of wastes and also identification of plants and trees in their neighbourhood and their possible uses. She emphasised the need for undertaking forest farming and tree planting on a large scale.

Referring to the need for effective coordination, the Prime Minister said that it is important that the universities should keep in touch with one another and share experiences and problems. The programmes undertaken by individual institutions for particular areas must be examined from the national point of view as cropping pattern and land use patterns have wider implications. There should also be close and constant cooperation between agricultural universities and the State agencies. It is necessary to have a constant dialogue with others working in rural areas, villagers and farmers for whom the programmes are intended. All must continue to help build an infra-structure for development. She wanted science and intermediate technology to be utilised for farming and for

developing small scale and large industries. The agricultural universities should discuss the problems of rural development with the farmers as man-to-man in terms of equality. If the farmers were approached in that spirit we can go much faster and avoid many mistakes.

While appreciating the good work done by the agricultural universities, the Prime Minister wanted them to ensure its extension to larger areas. She said that agricultural universities should keep in mind the long term productivity of the soil while applying modern production technology. The rapid deterioration in the ecology of Himalayan region was a matter of great concern as it would take several decades before a soil cover could be evolved again. Regeneration of the environment must therefore get top priority and there was an urgent need for maintaining balance in nature.

The conference was inaugurated by Shri Jagivan Ram, Union Minister for Agriculture and Irrigation Vice-Chancellors from all the agricultural universities attended. The following recommendations were made by the conference:

1. Since the Agricultural University movement in our country is 17 years old, the time is ripe for making a critical assessment of the growth and development of Agricultural Universities. For this purpose, a high level National Review Committee will be constituted by I.C.A.R., which will also make suggestions for further improvement of the system and for achieving the original purpose of the Agricultural University, namely, integration of research, education and extension training and discharging State-wide research responsibility in agriculture, animal husbandry, fisheries and forestry.

2. Home science education needs a rural orientation. For this purpose, I.C.A.R. should constitute a Committee to make suggestions with regard to restructuring of syllabi and admission and training policies.

3. I.C.A.R. should develop a Cell for promoting research on forest farming and social forestry. An officer of A.D.G.'s rank should be appointed for this purpose.

4. Agricultural Universities should set up research centres for introducing organic recycling systems in agriculture. The aim will be to integrate crop, livestock and fish production in a mutually symbiotic manner. Vice-Chancellors of Agricultural Universities will send suitable proposals for organising such an inter-disciplinary centre for research on recycling systems in agriculture.

5. A consortium of Universities will have to be formed for helping the establishment of an agricultural education complex in Nagaland. Vice-Chancellors will consider this matter and send suggestions to I.C.A.R.

6. I.C.A.R. should bring out soon a publication summarising all the available experience in Agricultural Universities on promoting "learning by doing", and "earn while you learn" projects and organising internship courses. Vice-Chancellors will send suitable material within a month to Dr. O.P. Gautam, Deputy Director-General (Edn).

7. Each Agricultural University should have a good nursery of seedlings suitable for the area. This can be used during the monsoon season for being planted both within the campus and in adjoining areas. The plants should be carefully chosen, combining economic purposes with ecological aims. Preferably, each University should have a nursery for planting at least one lakh seedlings each year. I.C.A.R. should provide adequate funds from the Development Grant of the University for organising such nurseries.

8. **Agricultural Universities** will intensify the germplasm collection both in economic plants and in farm animals in their respective areas.

9. The term "adaptive research" used by the National Commission on Agriculture is being used as an excuse by the State Departments of Agriculture for organising a parallel programme of research thereby causing avoidable duplication and confusion. Therefore, State Governments should be advised to follow strictly the definition given by the Union Minister for Agriculture & Irrigation in his address. The responsibility outlined by the Minister should be strictly adhered to. There should not be two separate Research Councils in each State. The Research Council of the Agricultural University and the Adaptive Research Council recommended by the N.C.A. should be merged into one Council, which may be called "Agricultural Production Research Council" and should be

chaired by the Vice-Chancellor of the Agricultural University.

10. Agricultural Universities will participate actively in the integrated Rural Development Project initiated for introducing science and technology to rural development. The Liaison Officers nominated by Vice-Chancellors may be requested to send all the available information relating to the district to Shri L.E. Soares, Member-Secretary, Project Preparation Committee for Integrated Rural Development, I.C.A.R., Krishi Bhavan, New Delhi.

11. Universities will work on an integrated approach to production keeping in view the need for ecological balance and harmony outlined by the Prime Minister. They will also pay particular attention to low cost energy supply in the villages and to the social implications of new innovations.

The next meeting of Vice-Chancellors will be held in Baster and will undertake an in-depth discussion on the research and training needs of tribal areas.

lack of information systems which would enable proper setting of goals and mobilising of resources. Summing up the deliberations of the seminar, Dr. P. Raufi, Chairman, Atomic Energy Commission, Kabul, said that the literature on science and technology, science policy and planning available in many of the developing countries was in no way inferior to those of developed or advanced countries. The seminar, he said, had helped the participants to establish contacts with sources of information from where the literature could be collected and the problems posed before them had been discussed in a mutually understandable way. The seminar would help in resolving problems or modifying solutions offered to suit the social situations. Prevailing in different countries.

The seminar adopted a resolution suggesting that the centre for study for science and technology and development of the Council of Scientific and Industrial Research, New Delhi, be converted into a regional centre for Asia. The Unesco fellowships should be offered to selected fellows from different developing countries to come and work at this centre.

The CSIR has established the centre in 1974. During the year it is likely to have two joint research projects, one with the Department of Liberal Sciences, Manchester University and the other with the Hungarian Academy of Sciences. The first project would study the impact of technological growth for increasing the food production in developing countries and the second one would analyse whether aid given to various developing countries either by the developed countries or by the international organisations had aided the countries or retarded their growth.

Prof. Y. Nayudamma, Director-General of the CSIR assured the delegates that the CSIR would be willing to offer the required technical help to the neighbouring countries.

CSIR Centre of Study of Science to be upgraded

At the invitation of the Government of India, a ten-day seminar on management of research and development institutions was held at the National Aeronautical Laboratory, Bangalore in cooperation with the Indian National Commission for Cooperation with Unesco and the Council of Scientific and Industrial Research, New Delhi. Dr. A. Rahman of CSIR was the Director of the seminar. He was assisted by a faculty team appointed by Unesco and headed by Dr. V.G. Podoinitsin, Director of Unesco Regional Office for Science and Technology for South and Central Asia, New Delhi. The seminar was attended by the representatives of Nepal, Malaysia, Singapore, Bangla Desh, Thailand, Burma, USSR, Afghanistan, Indonesia, Iran, Philippines and India. Experts from Australia, Hungary and United Kingdom also attended.

Modern management techniques, transfer of technology, the ethics of science, determination of research priorities, policy-making, policy implementation and R&D infrastructure were some of the subjects discussed at the seminar. Particular attention was given to linking of R&D systems to the productive sector of the economy taking into account various social factors such as the impact of the technological development on employment customs and urbanisation. Dr. Rahman said that the three basic problems of R&D in developing countries were pointed out by many of the participants. They were, firstly, resource constraint, secondly that most of the scientists had been trained abroad and therefore they were absorbing value systems of the developed countries which rendered them incapable of tackling the problems of their own countries and thirdly the

Centralised evaluation for Bihar Universities

The Vice-Chancellors of Patna, Bhagalpur, Magadh, Bihar, Ranchi, Mithila and Darbhanga Sanskrit Universities met the State Education Minister in Patna recently to discuss matters concerning evaluation of scripts for various examinations of the universities. It was unanimously agreed that disciplinary action should be taken in those cases where the evaluation of answer-books was not properly done. But before doing so proper enquiry should be conducted.

The Vice-Chancellors also agreed that question papers for all examinations should be set externally and the system of evaluation should be modified so that no scope is left for any bungling. The State Government assured the Vice-Chancellors that before promulgating an ordinance on this issue different aspects of centralised evaluation would be taken into consideration.

Choice of courses at IITs

Prof. A.K. Basu of Indian Institute of Technology, New Delhi, who was the Chairman of Admissions for various courses in IITs this year, feels that the choice of courses of candidates seeking admissions to the five institutes of technology does not appear to be related to their aptitudes or interest. They are guided much more by their assessment of job opportunities that will be available on completion of these courses. The pattern of the choice however continued to be Electrical (Electronics), Mechanical and Chemical Engineering, being the top three popular courses respectively this year. Though ample opportunities are available in IITs for teaching and research in all courses and now there was also good scope for securing jobs on the completion of the so-called "un-popular courses", yet the students opt for certain group of subjects in preference to others.

as a voluntary scheme. It comprises three wings, the graduate voluntary scheme (GVS), the national service scheme (NSS) and the concurrent study service project (CSSP). These units are engaged in different types of social work. Under the GVS the university has assigned its members to merely 30 villages in the State. They help the villagers and local officials in social organisation, education and agricultural supervision and demonstration. In all the villages so adopted land records have been prepared and titles rectified. In some villages the efforts of the volunteers have been responsible for securing a group loan of Rs. 1,63,000 for 155 farmers from the nationalised banks. In some other places farmers have been provided with high yielding variety of paddy. The farmers have been trained in various agricultural techniques. Literacy classes have also been held and night schools have been conducted for women especially by ladies. Youth camps have been organised and there are plans to open regular libraries and reading rooms.

The CSSP members feel that the science curriculum of Bombay University is very much out-dated in relation to the conditions prevailing in the rural areas. To make the study of science more integrated, purposeful and socially relevant they have suggested the creation of environment science providing a practical course based on the students knowledge of the different disciplines. It has been urged that such a course should be introduced in the university syllabus so that the students have sufficient exposure to the rural realities. This will help them prepare useful documents and projects. For this the university could organise instructions through the correspondence courses, assignments and by visiting teachers during the students stay of four months at the centre.

The national service scheme will help in running mobile creches, rendering first-aid and providing recreational and educa-

CAMPUS NEWS

In respect of the transfer of teachers, it was however suggested that the transfers should be within the university otherwise it might lead to dislocation of work. It was also agreed that universities which had upto now the dual system of examinership for honours and M.A. examinations should henceforth be given the option either to continue or to discontinue the system. Regarding the re-examination of answerbooks it was suggested that only one-third of the papers of a particular subject should be re-assessed and for that a separate fee should be levied from the applicants. If the difference in the two markings was found to be less than ten marks obtained by the concerned candidate, the earlier evaluation should be considered final.

The number of candidates seeking admission in Delhi zone had gone up in recent years. This rise may be primarily due to increasing number of candidates passing the school leaving examination. It also showed increasing interest in the engineering courses taught in the IITs. The corresponding rate for the candidates in Bombay zone was nearly twice as high. Majority of the candidates in Delhi and Bombay zones had English as the medium of their instructions

Bombay Varsity to help neighbouring villages

The University of Bombay has initiated from this session an interdisciplinary centre which is run by the graduates of the university

tional activities to the slum dwellers in the neighbouring areas. The first Kendra is expected to be started in September this year. The State Government has already sanctioned Rs.10,000 and Central Government Rs.40,000 for running the centres.

Regional centres for Andhra Science Academy

The Andhra Pradesh Academy of Sciences started in 1963 has decided to have two regional centres, one each at Tirupati and Visakhapatnam.

The Tirupati centre was formally inaugurated in the Sri Venkateswara University campus by Prof. K. S. Murthy, Vice-Chancellor of the University. Prof. B. Ramachandra Rao, Vice-Chairman, UGC and President of the Academy presided. The Andhra Pradesh Academy of Sciences has the objectives of advancement of Science in the State. It provides a forum for reading and discussing scientific papers, propagation of scientific knowledge among people by organising lectures, seminars symposia, tours and discussions, popular exhibitions and distribution of books on popular science and publication of Journals in Science.

The Academy has already 105 fellows as its full members and has so far published 26 scientific publications and conducted over 24 seminars. It has published Journal in English with popular science articles and views on current topics useful for postgraduate students. The Academy has organised refresher courses for high school teachers at different places. The regional centres are expected to engage themselves in conducting the various programmes consistent with the aims and objectives of the Academy mentioned above with particular reference to the needs of the various regions.

Mysore academic ventures

In the diamond jubilee year, the Mysore University has proposed a number of measures which will benefit its students and

staff. By introducing the semester system the university teachers now work for longer period thereby giving more time to students and their studies. At the postgraduate level the attendance requirement has been dispensed with. The award of third class has been abolished. The system of external examiners has been dispensed with. From the current semester, the university is introducing the radical system of returning the answer scripts to students after evaluation. It is being done to eliminate the alleged malpractices in evaluation. This kind of openness will change the attitude of examiners and students in the long run.

For the benefit of the staff the university has introduced family benefits and compulsory insurance schemes. The family benefit scheme ensures that if an employee dies in harness his family will get Rs. 10,000. The golden jubilee foundation fund has also been laid and the interest from this fund of Rs. 64 lakhs will be utilised to help students and teachers. Recently a promising lecturer was given a loan at a nominal interest to enable him to go abroad for higher studies. The university has adopted 100 adjoining villages by involving the staff and the students in rural re-construction work. Besides, it has introduced the open university system which permits people beyond 50 years to appear for a degree examination without any prescribed qualifications.

Lucknow centre for drug addicts

The Psychiatry Department of the Lucknow Medical College, affiliated with Lucknow University, is planning to set up a 30-bed clinical centre for the treatment of drug addicts at a cost of Rs. 5 lakhs. It has been estimated that about 30 per cent youth in the age group of 17 to 24 take various kinds of intoxicants. Not only students in universities and colleges but even those in professional institutions of medicine and engineering have become drug addicts. For most of them,

it starts in their teens and some time during ragging by seniors. Drug addiction is now going down to middle classes and has even reached the students of degree colleges.

Non-barbiturates come only next to alcohol in popularity among the addicts. Stimulants, more popularly known as amphetamines or 'pep pills' and preparations of methaqualon come next followed by minor tranquilisers which have become household names in the country, hypnotics including barbiturates, morphine and its substitutes not to speak of Bhang, Charas and Ganja.

Dr. B. B. Sethi, Head of the Department of Psychiatry in King George's Medical College in his studies on the subject has found that no other disease whether relating to heart or cancer or infection or for that matter accidents which can cause as much damage to nation's life as drug addiction. Realising the gravity of the problem the centre has set up a committee headed by the Director-General of the ICMR to examine the matter. Teams are also being sent out for a survey of medical colleges to collect adequate data on this problem.

Students panel for Delhi Varsity

The Delhi University has asked the Principals of colleges to set up student committees for the current academic year to ensure meaningful participation of students. The term of the present student committee both in the colleges and the university would come to an end soon. Previously the union

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had been formed by direct election of office bearers at the university and colleges but it was found that too much of politics was introduced. The university has therefore decided to set up student committees in each college and for the university as a whole. The office bearers would be nominated by the Vice-Chancellor or the Principals as the case may be on the basis of their academic merits and extra curricular activities.

Seven office bearers were nominated for the colleges and university committees last year each dealing with one function. These were : cultural activities, debates, transport, student facilities like canteens etc., the NSS, sports and academic programmes. Separate student committees for the South Campus and North Campus would be formed this year so that there was no need for the committee members to commute between the two. To ensure that only meritorious and capable students are nominated the university has stipulated that the students should not have completed the age of twentyfour if he is a day student and twentyseven if he is an evening class student or if he has completed seven years in the university. The university has also debarred those students who have acted violently or have been found guilty of using unfairmeans in the examinations or have a record of previous conviction.

Kumaon plans ecological survey

The Hill University of Kumaon in U.P. is proposing to initiate various schemes of regional importance. The ecological studies in the lake district of Nainital has the first priority. The university will also undertake geological surveys in the hill districts of Almora and Pithoragarh. The Science and Technology department has already sanctioned a sum of Rs. 4 lakhs for the ecological study of high altitude lakes of Kumaon. A committee for studying the pollution in the

lake water, siltation and weed control of lakes has been formed. The university has undertaken an interdisciplinary research project to study the climatic conditions and the anticipated rate of siltation in the proposed dam across the Gaula river. In the first phase of investigation, 8 meteorological stations had been set up in Nainital. Eight more meteorological stations would be established along with seven siltation units in principal tributaries of the Gaula river. Land use and capability surveys, slope analysis, fuel forestry, programme and social microbiological studies would be undertaken subsequently.

Dr. D.D.Pant, Vice-Chancellor of the university said that the enquiry at the second and third stages would also extend over such important aspects of planning as hydrological studies, agricultural land use, soil deterioration, etc. The various faculties of the university would work in close collaboration with the Government departments including the forest, irrigation, agriculture and soil conservation.

The university also proposes to have a community college at Nainital in the near future.

Law Institute

The Review Committee appointed by the Government of India to go into the working of the Indian Law Institute has prescribed a ceiling of Rs. 6 lakhs govt grants. The Law Institute has been doing useful work such as publishing studies on law and a comprehensive annual review of legislations, arranging lectures, etc. The committee has recommended that the institute should devise its programme on research actively and determine priority and set up a research committee of about 10 members consisting of jurists, some judges of the Supreme Court and High Court and Delhi University Dean, Faculty of Law. Certain structural changes in the governing council and the executive council have been suggested to ensure

effective and efficient management by the institute. The Review Committee was presided over by the Chief Justice of India.

ISM adopts semester system

In pursuance of the recommendations of the University Grants Commission, the Indian School of Mines, Dhanbad, has adopted a modified semester system from the current academic year for the first and second year classes. The senior classes will however continue following the traditional educational pattern of mid-sessional and annual examinations. In preparation to the adoption of semester system and continuing assessment, the School had increased considerably about three years ago the weightage given to sessional marks and mid-sessional examinations to nearly 40 per cent of the total marks. While the School still follows the marks-system for assessment, it expects to adopt the grade-system from next year.

As the semester system lays great stress on continuing internal assessment, it requires the students to be regular in their studies throughout the session. The practice of concentrating the academic effort towards the year-end is thus discounted. A properly structured lecture-cum-assessment programme is now followed by the faculty.

Madurai colleges to adopt villages

Shri S. V. Chintlababu, Vice-Chancellor, Madurai University, while inaugurating the multi-media publicity campaign festival said that the university has adopted Vadapalanji village and has drawn up an ambitious plan for its overall development. The programme of rural development is progressing satisfactory. Encouraged by the success of the programme, the university is requesting all the 104 colleges affiliated to it to adopt a village each in response to the Prime Minister's call for integrated rural development. It is expected that the colleges will respond favourably to the appeal.

NEHU introduces applied education

Besides making education a life-long occupation, the North-Eastern Hill University has started an ambitious programme of applied education. The university has developed the concept of continuing university education in which learning comes not through lectures but by action. Shri T.A. Koshi, Director of the non-formal education project for women in the Council for Social Development, recently paid a visit to Meghalaya. He has identified urban and rural areas in Shillong and Jowai for introducing continuing education at the village level. Dr. Chandran D. S. Devanesen, Vice-Chancellor, NEHU, has also emphasised that universities should play an active role in carrying knowledge to the community and accept this service as one of their important responsibilities. The university has started classes for the 'Kong'. Already three classes with 50 students each are working in the evenings. The university also organised a seminar on legal aid for the poor a few months ago. Three Supreme Court judges—Shri H. R. Khanna, Shri Y. B. Chaudrachud and Shri Goswami and the renowned constitutional expert Dr. L. M. Singh, participated in various programmes organised in this behalf by the university.

Joint Space Science programmes

Dr. Y. Nayudamma, Director-General, CSIR, has proposed a multi-organisational as well as multi-disciplinary cooperative effort in space science research. While inaugurating a space science programme of the Madras University at the College of Technology he said that the National Aeronautical Laboratory, the National Physical Laboratory and the similar institutions with the necessary competence should be requested to interact with research in the universities. The CSIR would be glad to associate with the projects in material sciences and instru-

mentation and would be willing to offer adequate fellowships.

Multi-disciplinary activities envisage a combination of resources and talents from different scientific disciplines to tackle problems from different angle to find agreed solutions in a given period. It is necessary that the universities should also involve all institutions in this effort. The research programmes should likewise provide proper leadership to involve the creative and innovative talents of individual scientists in a team work. They should give the incentives needed for highly independent scientists to come and work with freedom. This was most important in space research programme.

The Director-General said that the distinction between fundamental and applied science had no significance. The so-called short-term and long-term research were equally meaningless. Even in fundamental research the criteria should be whether it would help to fill a gap in knowledge and the research efforts should be channelled towards a purpose. He emphasised the need to produce right kind of scientists in universities who were in demand in the country. There was a great dearth of biologists and material scientists.

Dr. Malcolm Adiseshiah, Vice-Chancellor, Madras University while releasing a university monograph on this occasion said that university space research programme was started with four projects which carried fellowships. An exhibition of work on space research was also formally opened.

Bihar Ordinances

Drastic changes have been brought about in the powers of the examination boards of the universities with a view to maintain the strict secrecy and to ensure sanctity of university examinations by the two ordinances promulgated by Bihar Government on 16th August. These ordinances empower the

Vice-Chancellors to take final decision in matter of university examinations. The role of the examination boards would now onwards be only advisory. As regards the appointment of question paper setters and examiners, the Vice-Chancellors have been further empowered to appoint them from the panel submitted by the examination boards. There will be three experts from amongst the teachers for university examinations. The expert from within the university will be nominated by the Vice-Chancellor. The remaining two experts—one from outside the university and the other from outside the State—will be nominated by the Chancellor from the panel submitted by the Vice-Chancellor. These experts will have the right to vote in the finalisation of the recommendations for appointment.

The State Government would have a closer financial control over the universities. Every university will now be required to send to the Government its budget two months before the commencement of the financial year and the State Government may approve of the same with or without modifications. The university shall have to abide by the budget as approved by the State Government. The same will be true of the supplementary budget also. This has been done to ensure financial discipline in the universities.

Under certain circumstances a Vice-Chancellor may be asked to resign from his post even though his appointment was made for a definite term.

In all the universities, the post of the Pro-Vice-Chancellor

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will continue as before. Any officer and teacher of the university may be transferred within the university by the Vice-Chancellor. The Chancellor may however transfer any teacher and officer including the Vice-Chancellor from one university to other. The State Government can order an enquiry into the affairs of any university. It can also accept or reject the recommendations of the university for the creation of new posts. The Vice-Chancellors of the universities will have over-riding powers in relation to the Syndicate. With this power they can reject any Syndicate decision or resolution if it is not in consonance with the statutes.

Besides code of conduct for teachers and other employees, the ordinance incorporates separate provisions for conducting examinations and appointing teachers. The Vice-Chancellor's tenure has been fixed at three years and they would be eligible for re-appointment for another three-year term.

Calicut faculty improvement programmes

The University Grants Commission has selected departments of Zoology, Botany and Physics of the Calicut University for faculty improvement programme. Under the scheme five to ten teachers of the affiliated colleges will be accepted as teacher fellows and given special facilities in the university departments for taking up M. Phil or Ph. D. courses.

The University Grants Commission has also sanctioned a scheme for improving Physics teaching in the colleges. Six batches of 22 teachers, each will be given four months training at the university. The first batch is expected to start training by December this year. Some of the colleges affiliated to the university have already received the sanction of the UGC to set up workshops with its aid so that the practical work for students could be orien-

ted towards equipment design fabrication and testing.

New pattern of education

Mr. D.P. Yadav, Deputy Minister for Education, informed the Lok Sabha that 19 States and Union Territories had already adopted the 10+2+3 system of education. These are Andhra, Assam, Bihar, Gujarat, Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Sikkim, Tripura, U.P., West Bengal, Andaman and Nicobar Islands, Arunachal Pradesh, Chandigarh, Dadar and Nagar Haveli, Delhi, Goa, Daman and Diu and Kakshadweep.

Harayana, Himachal Pradesh, Manipur, Nagaland, Tamil Nadu, Rajasthan and Orissa would be introducing the system during 1977-79 session.

Five States and Union Territories were still considering the matter—Madhya Pradesh, Meghalaya, Punjab, Mizoram and Pondicherry.

Tirupati to design reading material for adults

The Indian Adult Education Association, New Delhi, has decided to start a State Resource Centre at the Sri Venkateswara University, Tirupati, to augment the supply of reading material for adults in the State. The Association would provide financial assistance amounting to Rs. 40,000 for this purpose.

The University Department of Continuing Adult Education which was centralising on research teaching, training and extension activities in adult education would be entrusted with the responsibility of production of teaching and learning materials on adult continuing and non-formal education. A committee under the chairmanship of Prof. K.S. Murthy, Vice-Chancellor, Sri Venkateswara University has been constituted to provide leadership to the centre. The centre would also cater to the needs of the adult literate and neo-literate by making available more reading material for the adults.

Course in Space Technology

The Andhra University has decided to start a course in Space Technology. A sub-committee of the University studied the various problems and held discussions with Indian Space Research Organisation to make the course more relevant to the present day requirements. The University Grants Commission has decided to give a non-recurring grant of Rs. 2.30 lakhs for making additions to the existing laboratory and fabricating equipment for rocket pay loads and telemetry. The recurring assistance amounting to Rs 55,000 would also be provided annually and ten student-ships of Rs. 250 per month would be instituted. The Andhra University has the advantage of sending their students to Sriharikota, the main base for rocketry for advance studies.

Kerala increases academic scholarships

The University of Kerala would be starting correspondence course from this year as an experimental step in non-formal education sector. A computer centre is also being set up with the UGC assistance. The quantum and number of merit scholarships have been increased and a number of amenities have been provided to the student community. The number of scholarships have been raised from 200 to 412. Supply of essential articles in the university hostels at concessional rates has been arranged. Particular attention has been paid to students health care programme. A health education programme has been set up and a survey is being arranged in this regard by the university health centre.

Students adopt monuments

The historic temple of Nat-raja at Chidambaram has been adopted by the students of Annamalai University under the student's programme of preservation of ancient monuments. The students have taken a vow to visit the temple twice a week and clean

the sculptures in the gopurams. The students have been given proper training to read and copy the inscriptions on the outer wall of the temple by the State Department of Archaeology. The students propose to copy all the inscriptions on the temple walls in a phased programme and a suitable book would be brought out on the completion of this project. The university students have been actively involved in the campaign of the preservation of ancient monuments, temples with historic background in south arcot and north arcot and union territory of Pondicherry.

TN Science Academy plans

The newly started Tamil Nadu Academy of Sciences has decided to explore the possibilities of publishing a high quality science periodical. Dr. A. Ramachandran has been entrusted with the work of planning such a publication. A periodical in Tamil will also be published to make the public aware of the role of science and technology and the contribution it can make for the progress of the country. The details of the scheme would be worked out by Prof. G.R. Damodaran.

The academy will not duplicate the clearly specified works of universities and the government departments would assume an advisory role for evolving a science and technology policy for the State and help the implementing agencies as an expert body. The general body of the academy would be meeting in September at Guindy Engineering College when a seminar on science and technology policy for the State would be held.

Madras colleges to adopt villages

Dr. Malcolm Adiseshiah, Vice-Chancellor of Madras University, has asked all the colleges affiliated to the university to adopt a village for integrated rural development under the national programme. The Madurai University has already adopted Vada-

palanji village 20 km from Madurai and the students of the university have been involved with its development programmes. The university Syndicate in its last meeting requested the Tamil Nadu Government to set up a separate Board and separate Inspectorate for matriculation schools in the State which uptill now has been under the jurisdiction of the university.

Resource unit on programmed learning

The Department of Education, South Gujarat University, Surat, has established resource a unit on programmed learning material and tests in various subjects. It is also proposed to set up a reference library for the programmes and tests produced in India and abroad. At present the university is conducting 150 programmes and over 100 tests. The catalogue of the programmes and tests are available on request. These programmes and tests can be made use of by the programmers and researchers of other universities on nominal payments to the university.

Correspondence courses for Andhra Varsities

Sri Venkateswara and Andhra Universities have decided to start correspondence courses for their BA and BCom degrees. The correspondence courses at intermediate level are already available in Andhra University. The university will not insist on minimum qualifications and anyone over 21 years can appear for the pre-university course or degree

examination provided he passes a qualifying test.

New courses at Tirupati

Rural industrialisation, horticulture, machine shop practice and dairy science would be some of the new subjects to be introduced by the Sri Venkateswara University from this session. Steps are also being taken to implement the various restructured courses in its affiliated colleges as per the guidelines provided by the University Grants Commission.

The university would also receive a grant of Rs 17,200 from UGC for starting an Institute for advanced studies in Sanskrit.

Ceiling on evaluation of scripts

The University Grants Commission is considering a proposal to prescribe a ceiling for evaluation of answer books by a single examiner in universities. According to the Commission no examiner should be called upon to examine more than three hundred scripts for undergraduate students. The number in the case of postgraduate students for annual or semester examinations should be one hundred & fifty and the same norms should be observed for examination of scripts in respect of correspondence courses for private students. But the main problem is likely to arise in the implementation of the proposal as the examiners get the answer papers from various universities which are to keep the information confidential.

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President to open Kakatiya University

President Fakhruddin Ali Ahmed is likely to inaugurate the newly formed Kakatiya University in Warangal on September 15. The State Government has assured full financial assistance for the growth and development of this newly started university. Prof. K. Venkatramaiah who was Director of the Postgraduate Centre has been appointed as the Vice-Chancellor. The university would be affiliating one and the regional engineering college would be one of the associated colleges and would be allowed to maintain its autonomous status. Its jurisdiction will be extended to five adjoining districts. It is estimated that the university would require about 3 crores for its developmental projects, two crores for construction programmes and one crore for academic activities and research work.

Training of farm students

According to Mr. N. Kaleeswaran, Vice-Chancellor, Kerala Agricultural University, it costs the government between Rs. 6,324 to Rs. 8,953 a year for every student at his university. A student at the agriculture college costs the community Rs. 8,953 a year while a student at the veterinary college costs Rs. 8,370 and the one at Horticultural college Rs. 6,324. Besides, between Rs. 3,000 to Rs. 4,000 was spent by student himself.

College teaching seminar held at Madras

The need for giving professional training in teaching methods to college teachers was stressed in a seminar organised by the Department of Education, Madras University. Dr. Malcolm S. Adiseshiah, the Vice-Chancellor of the University while inaugurating the seminar on college teaching pointed out that the programme in teaching methodology for college teachers were non-existent in the universities as training was

not considered essential for teachers in higher education. The views so far had been that it was the content rather than the methodology of teaching that was important. But he said that this attitude should be changed as the college teaching was very much an essay in learning and the teachers must keep down monologues to a minimum and initiate dialogues with the students. The emphasis should be on his study rather than on instruction and evaluation which must be regarded as a feedback system that would help both the teachers and students to assess their work. He stressed that the visible curriculum that was taught was more important than invisible curriculum made up with the lives that the teachers live and the virtues they practised.

Dr. M.B. Buch, Head of the Centre of Advanced Study in Education at M.S. University of Baroda, in his keynote address said college teachers viewed with suspicion any attempt to start training programmes for them. The approach had been that mastery of the content would enable good teaching. There was also a feeling that good teachers were born and not made and that there was no need for any orientation. The resistance of college teachers was gradually breaking down and some universities have started training courses for them. An alternative to specific training programmes was to give a course in teaching to doctoral candidates as part of their Ph.D. study. Individual departments could also run orientation courses for new teachers in different subjects.

Dr. (Miss) E.G. Vedanayagam, Professor of Education, Madras University, while proposing a vote of thanks said that the seminar which was a maiden effort of the newly started department was being held to stress the need for excellence in college teaching. The one-day seminar was attended by one hundred and fifty participants including college principals and senior faculty members of the university departments and city colleges. In the two business sessions

that followed the inauguration, eight papers were presented on various aspects such as teaching of science, humanities and languages, psychology of learning, self evaluation and teaching environments.

Osmania Mining course shifted to Kothagudem

The mining course in engineering would be shifted from Osmania university campus to the field area to provide the students better practical training. The course would now be conducted at Kothagudem. The idea of shifting the course became possible due to pragmatic outlook of the dynamic Managing Director of the Singareni Collieries. Mr. P. Jagannoban Reddy, Vice-Chancellor of Osmania University, said that Khammam was one of the richest districts in Andhra Pradesh in mineral wealth and this would provide greater opportunities to the students to mould themselves as able mining engineers. He said that there were plans to establish the postgraduate centre in other district headquarters apart from Warangal. Because of the backwardness of Telangana Region, Khammam district was chosen in view of its abundant mineral resources and other potential. This step would facilitate imparting of education in rural backward areas in preference to cities.

Job-oriented courses

The Madras University will start ten job-oriented courses from the semester beginning in December this year. These relate to materials management, agricultural banking, office administration and industrial relations, market research, data collection, leather technology, transportation accountancy, aquaculture, portfolio management and the coaching for the intermediate and final examinations of the Institute of Chartered Accountants.

These courses were recommended by the University Advisory Council on Trade and Industry as part of what Dr. Malcolm S. Adiseshiah termed the University's

efforts to fulfill the needs of the business and industrial community. These will be mostly part-time diploma and certificate courses meant for persons working in the connected fields at the middle level. The classes will be handled by the guest faculty members drawn from various industries and professions. The course will be self-financing and will not depend on grants from the Government or involve any expenditure on the part of the university. Generally half the cost of running a course will be borne by a sponsoring agency or an institution and the other would be met from the funds paid by the students.

Computer centre for Dibrugarh

A computer centre at a cost of Rs. 6 lakhs has been opened in the Statistics Department of the Dibrugarh University. The entire cost of the centre will be financed by the funds received from the University Grants Commission.

Science Museum

The Assam Government will shortly set up a science museum at Gauhati to help college students to acquaint themselves with the latest discoveries made in the fields of science and technology. Arrangements have also been made to enable the university students to study for few days at the centre. The State Government would be launching a programme for promoting science talent among students.

Hari Om Awards

Four outstanding scientists—three belonging to the Indian Space Research Organisation and one to the National Physical Laboratory, New Delhi—were presented the Hari Om Ashram Prerit Vikram Sarabhai Awards this year. The awards are given to the scientists who are not above the age of 45 for outstanding research in electronics and tele-communications, planetary and space sciences, atmospheric physics and hydrology and sys-

tems analysis and management problems. The recipients are ; Prof. U.R. Rao, Dr. B.M. Ready, Mr. N. Pant and Mr. P.P. Kale.

Personal

Dr. V.J. Gupta, Reader-cum Curator, Centre of Advanced Study in Geology, Panjab University has been invited to attend the meeting of the Early Palaeozoic Working Group of the International Sub-Commission of Gondwana Stratigraphy to be held at the 25th session of the International Geological Congress in Sydney (Australia). His visit has been sponsored by the International Union of Geological Sciences. Dr. Gupta will present a detailed account of the Early Palaeozoic Stratigraphy of the Himalayas.

Dr. S. Chandrasekhar, Vice-Chancellor, Annamalai University, has been invited to deliver the Dillingham lectures at the East West Centre of the University of Hawaii in September. Dr. Chandrasekhar would be first Indian scholar to be invited to give these lectures. His lectures would be on population, poverty and pollution.

Chair in Philosophy

A Chair in Jain Philosophy, Logic and Culture has been established by the University of Poona from this academic session. The Chair is named as 'Seth Hirachand Nemchand Chair in Jain Philosophy, Logic and Culture'. The Walchand Group of Industries as already paid Rs 2.50 lakhs as its contribution to the 5 lakh fund raised for this purpose.

New courses at Cochin

The University of Cochin has decided to institute two new degrees at the postgraduate level. One would be in Marine Geology and the other in Industrial Fisheries in the Faculty of Marine Science. B. Tech course in Polymer Science and Rubber Technology is also proposed to be introduced from the next aca-

ademic session. The university would also be starting the translation and publication bureau. A hostel for its non-teaching staff is also proposed to be built.

Rural medical plan

Mr. M.L. Batra, Vice-Chancellor of newly started Rohtak University is keen to make the university specialise in the Life Sciences. The five ayurvedic colleges in Harayana are expected to be affiliated to the university to ensure a uniform high standard of education in the ayurvedic system of medicine. The ultimate objective is to promote community medicine and the Rohtak Medical College which has been recently associated with the university has already involved itself with the community around it. An effort is being made to take medicine and surgery to the doorsteps of the villagers. The experience gained would be fed back to the academic and research activity on the campus.

The Vice-Chancellor is anxious to encourage coordination between the medical college, the proposed school of life sciences and the school of environmental studies. The Hissar Agricultural University and the ayurvedic colleges would also be associated with this community service and for further research.

Question Bank at Utkal

Utkal University has decided to modify the internal assessment examination system to make it more effective. This will minimise the gap between internal and university examination marks secured by students in various colleges. Guidelines are being prepared for a uniform pattern of assessment in all the colleges. The university will simultaneously keep a watch on the performance of college authorities in the internal assessment of students. With a view to bring uniform implementation of the scheme it will establish question bank to provide standard questions on different subjects to the colleges for their internal assessment. Such examinations shall be held in general classes

instead of in tutorial classes and shall be spread as far as possible throughout the year.

Considering the merit of internal assessment system the university has raised from the current year the weightage of the internal assessment examination from the existing 20% to 35% of the total marks at all stages—pass, honours and practicals—in the faculties of Arts, Science and Commerce.

Scholarships for Bangladesh students

Mr. D. P. Yadav, Deputy Education Minister announced in the Rajya Sabha recently that under the scheme of scholarships/fellowships for the nationals of Bangladesh, 100 scholarships had been offered during the current academic session.

The scholarships will be in the subjects like engineering and technology, medicine, social science, industrial science, education, culture, sports and other specialised subjects. The scholarships are tenable for the period required for the completion of the courses for which the candidates are selected. The scholars are entitled to maintenance allowance of Rs. 350 per month for undergraduate courses and Rs. 400 per month for postgraduate courses.

Those employed in Bangladesh universities or working in the government or other academic establishments were paid equal salaries they were getting in their home country subject to the maximum of Rs. 1000 per month. The scholars are also entitled to get book allowance, outfit allowance and passage money, both ways besides their tuition fees and other compulsory charges which were paid direct to the institutions. A sum of Rs. 12.5 lakhs has been provided for the scheme during the current financial year.

Teacher Fellowships

The University Grants Commission has decided to award scholarships in various subjects at different postgraduate univer-

sity departments. Five to ten teacher fellowships for each department would be assigned at any given time under the faculty improvement programme. This step would raise the academic qualifications and professional competence of teachers in affiliated colleges. The fellowships will be of two types. One of short term duration for one year and the other of a longer duration of three years. The one-year fellowship will be for college teachers below the age of fifty to enable them to undertake the M. Phil./M.Litt or to complete Ph. D. already in progress or to undergo training in research methodology. The three-year fellowship is intended for college teachers preferably below the age of forty for research leading to Ph.D.

The Commission will provide a monthly allowance of Rs. 250 to the selected teachers in case they decide to utilise the fellowships at a university not located at their place of study and an annual contingency grant of Rs. 1000.

Calicut prepares for student elections

The Calicut University is having a joint consultation with the Kerala University with a view to making transfer of students from one university to the other less difficult for the students. At present if a student from one university joined the other, he has to write all the examinations once again. For instance if a first year completed BA student of the Kerala University migrates to the Calicut University he has to write the first year examination of this university all over again.

The university has approved the guidelines suggested by the Government for the conduct of student elections and decided to make arrangements to hold the elections early. On the suggestion of the students welfare committee a writers camp is being organised. The university has prepared general guidelines for the working of the newly formed staff council.

Restructuring the University System

(Contd. from page 5)

Industry, Business and Law. (10) One Headmaster nominated by the Vice-Chancellor, (11) one member of the non-teaching staff of the university elected from among themselves and (12) Four persons representing distinguished writers, journalists and artists.

It may be seen that the Syndicate and the Senate as suggested above will be compact and effective expert bodies, representative of the academic and other relevant interests. These bodies would be really deliberative bodies and not sound making assemblies doing no effective work. The process of election also has to be simplified to make it less time consuming. If people who are concerned about the progress of universities in India seriously think about these aspects it may not be difficult to save the universities from their present doldrum. If universities are allowed to rot and deteriorate with their present structure and composition, all the money that is wasted on universities will be unjustified. It is hoped that both academics and administrators will think on this problem and the legislature will soon come to help in remodelling the University Act, making the university system more effective and capable of taking up the challenges it face and well suited to the nature of its working. □

UPSC's data bank

The Union Public Service Commission has begun work on data bank on personnel specialised in disciplines like engineering, medicine and social sciences. Through contacts with individuals and institutions a register of persons with specialised qualifications working as Professors or holding the rank of Deputy Secretary and above in the Government has been compiled. This register is constantly being updated and expanded. Ultimately the data is to be fed into the computer which would be acquired from the Electronics Corporation of India by the Commission.

The long term objective is to enable the UPSC to find persons with right qualifications and experience for key jobs which cannot be filled by merely inviting applications. The data collected, categorised and compiled will cover the entire range of requirement needed to assess the availability of key manpower in Government and public undertakings. This coverage will have to be widened considerably to meet the national requirements. Along organising the data bank for specialised manpower, the Commission is also working on new concepts of examinations.

The application forms for several categories are being made uniform and rationalised. The postal department is being requested to distribute through its outlets application forms for jobs to be filled through interviews. Apart from reducing the procedural work this will make the forms easily available to the candidates who will otherwise have to write for forms to the UPSC, send postal orders and wait for the reply. On an average the Commission recommends for posting about 3,500 people a year through interviews and equal number through written examinations.

In written examinations in papers with multiple choice questions the candidate will be required to answer on the question paper itself where intelligence quiz is involved. This will further

eliminate the possibility of such papers being collected by 'teaching shops' for business. The Commission has also allowed the candidates to answer the compulsory papers in General Knowledge and essay in Indian languages.

Incentives for scientists abroad

Highly qualified scientists will be given concessions to import professional scientific instruments and equipments, new or used, worth up to Rs. 50,000 under certain conditions. This facility has been provided by the Government to encourage the return of highly qualified scientific personnel to this country. This concession would be available even to those scientists who had been living abroad for over two years. They would be permitted to bring the equipments out of their own foreign exchange earnings.

The other schemes introduced to lure the scientists have been instituted by the CSIR. Research Associates or Visiting Scientists can now be appointed in the various CSIR organisations. The University Grants Commission has also introduced a scheme under which Indian scholars abroad can be offered short-term appointments in Indian universities during their sabbatical leave.

Another package scheme for engineers, technicians and scientists of Indian origin abroad is to enable them to start their own industries particularly where their own skills are made use of.

Even supernumery posts may be created in approved scientific institutions to which temporary appointments can be made. The Indian scientists abroad will be treated by the Union Public Service Commission as 'personal contact candidates' for jobs advertised by them from time to time.

The Department of Science and Technology has formulated scheme for the utilisation of talented Indian scientists, engineers and technologists settled abroad for development program-

mes in the country. An advisory committee is being constituted to operate this scheme. The committee will have representatives of all the scientific agencies as well as the Ministry of Education.

This scheme will be limited initially to scientists and technologists of outstanding eminence who have retained strong links with the country. Scientific Attaches of Indian Embassies will be associated in the screening of selection of persons under this scheme. It is proposed to provide short duration assignments at Indian Research Institutions or universities. For this, suitable honorarium would be provided. Through this scheme an effort would be made in establishing a bridge within the country and the Indian talents abroad.

International seminar on Himalayas

A five-day international seminar on Himalayan geology will be held in New Delhi from September 13, 1976 to discuss the possibilities of oil and natural gas accumulation in Himalayan terrain. Important metallic mineral deposits of lead, copper, zinc and bismuth are considered to be substantial in the Himalayas. Other minerals known to exist there are graphite salt, potash and borax. The most important semi-precious mineral to be located there is sapphire.

The seminar's deliberations would be divided into four sections. Two sections will be devoted to developing concepts of economic possibilities of the Himalayas. Of the other two sections, one would deal with geology, stratigraphy and palaeontology. The second section will be devoted entirely to the study of structure, tectonics, seismicity and evolution of the Himalayas.

The seminar is likely to throw interesting light on the recent earthquakes in Asia and the possibility of earthquakes in India. Another important subject for discussion is the presence of inexhaustible deposits of coal, limestone, dolomite, gypsum and phosphorite.

Conferences, Seminars and Workshops in India—1976

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
September			
6—11	Integrated Materials Management	Ahmedabad	National Productivity Council
6—18	Machine Tool Elements	Madras	Nat. Productivity Council
6—18	Maintenance Management	Bombay	Nat. Productivity Council
7—18	4th Advanced Personnel Management Programme	Srinagar	All India Management Association, New Delhi
8—10	Symposium on tropical Monsoons	Poona	Indian Institute of Tropical Meteorology, Poona.
8—18	Low cost automation	Bangalore	Nat. Productivity Council
11—12	10th Urology Sectional Conference	Bangalore	Association of Surgeons of India, P.G. Institute of Medical Education & Research, Chandigarh
12—25	Agricultural Management Programme	Jaipur	Indian Inst. of Management, Ahmedabad
13—16	Manpower Planning and Development	Delhi	Nat. Productivity Council
13—17	Seminar on Himalayan Geology	New Delhi	1. Geological Survey of India, Calcutta 2. Nat. Geophysical Research Institute, Hyderabad 3. Oil & Natural Gas Commission, Dehra Dun 4. Dept. of Mines G.O.I., New Delhi
13—18	Raw materials technology for Cement Manufacture	Cement Research Institute of India Laboratories, Ballabgarh (Haryana)	
20—24	Instrumentation and Process Control	Ahmedabad	CRI Nat. Productivity Council
20—30	Transport Management	Madras I.I.T	Indian Inst. of Management, Bangalore
23 Sep— 13 Oct	Super 8mm Loop Workshop	Ahmedabad National Institute of Design	N.I.D. Centre for Development of Instructional Technology & British Council
26 Sep— 5th Oct	19th General Assembly Meeting of the International Union of Biological Sciences	Bangalore, Indian Institute of Science	Ind. Nat. Science Academy, New Delhi
27—28	Workers Participation in Management	Kanpur	National Productivity Council
27—29	Advances in Reproductive biology of Animals	Karnal National Dairy Research Institute	NDRI

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
27—29	National Symposium on Hydrological Problems Related to Development of Power and Industries	Kanpur, I.I.T.	C.S.I.R, New Delhi
Last week Sept or 1st week Oct	New Frontiers in Cytogenetics	Karnal National Dairy Research Institute	NDRI
Sept 76	All India Seminar on Reliability in Electronics	Inst. of Engineers (India) Bangalore	Inst. of Engineers (India), Calcutta
Sept 76	Mid Term Conference of the Cardiologi- cal Society of India and the Thoracic Surgery Section of the Assoc. of Surgeons of India	Chandigarh P.G.I	Cardiological Society of India & Thoracic Surgery
Sep-Oct 76	Legal Control of Environmental Pollution	New Delhi	Indian Law Institute, New Delhi
Sep-Oct 76	Workshop on Statistical Tools in Economics	Berhampur	Berhampur University & UGC
October 6-10	Annual Conference of the Indian Library Association	Srinagar	Indian Library Asso- ciation
11—16	Application of Computers for Load Despatch	Bangalore Indian Institute of Science (School of Automation)	Electronics Commi- ssion, New Delhi
11—16	The Concept of Man : Perspectives from the Social Sciences	Simla	Indian Inst. of Ad- vanced Study
11—16	Fibre Reinforced Plastics Technology	Madras I.I.T.	I.I.T. Madras
14—15	Nutrition Workshop for Journalists	Hyderabad Nat.Inst. of Nutrition	N.I.T, Ind. Council of Medical Research and UNICEF
14—19	Symposium on Warm Water Zoo Plankton	Goa National Institute of Oceanography	N.I.O. & CSIR
18 Oct- 1st Nov	Winter School in Engineering Applications of Lasers and Laser Systems	Bangalore Indian Institute of Science (Central Instruments & Services Laboratory)	Indian Society for Tech. Education, I.I.T. Campus, Madras
25 Oct- 5 Nov	Opencast Mining	Dhanbad	Indian School of Mines
26—30	Materials Management	New Delhi	Nat. Institute of Health Administration and Education
27—30	Annual General Meeting of the Indian Society for the Study of Reproduction and Endocrinology	Delhi University Dept. of Zoology	Indian Society for the Study of Reproduction and Endocrinology
28—31	Alternatives in Health Delivery Care Systems	Hyderabad Nat. Inst. of Nutrition	Indian Council of Med. Research & Indian Council for Social Science Research
30—31	Symposium on Computer and Control	Hyderabad	Inst. of Electronics & Telecommunication Engineers, New Delhi
31 Oct- 5 Nov	9th International Diabetes Congress	Vigyan Bhavan New Delhi	Diabetes Assoc. of India, Bombay
Oct 76	Seminar on Cooperation and Cooperatives	Kolhapur	Dept. of Economics Shivaji University and ICSSR
Oct 76	Teaching Technology	Kanpur I.I.T.	I.I.T

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
Oct-Nov	Examination Reform in Higher Education and Evaluation Techniques	Bombay S.N.D.T. Women's University	U.G.C & SNDTWU
November			
1—5	3rd High Energy Physics Symposium	Bhubaneswar	Tata Institute of Fundamental Research, Bombay and Dept of Atomic Engery, New Delhi
1—6	Rock Mechanics Applied to Hard Rock Mining	Udaipur	Indian School of Mines, Dhanbad
2—6	Alternatives in Education I	Simla	Indian Inst. of Advanced Study with ICSSR, New Delhi
2—7	Maintenance Management	Bangalore (or) Madras	All India Management Association
3—8	Seminar on Functional Analysis and its Applications	Kolhapur	Dept. of Mathematics Shivaji University and UGC
6 Nov	Pharmaceutical and Fine Chemical Industry in India : Present Status and Future development	Calcutta	Indian Institute of Chemical Engineers, Jadavpur University, Calcutta
7—8	All India Seminar on Teaching and Creativity in Art	Santiniketan	UGC & Visva Bharati
9 Nov-8 Dec	19th Hospital Administration Course	New Delhi	Nat. Institute of Health Administration and Education
12—14	45th Annual General Meeting of the Society of Biological Chemists (India)	Hyderabad National Institute of Nutrition	1. N.I.N 2. Regional Research Laboratory, Hyderabad
13—14	Symposium on Electron Devices and Components	Bombay	3. Osmania University Institution of Electronics & Telecommunication Engineers, New Delhi
15—18	Symposium on Archaean Geochemistry	Hyderabad	1. CSIR, New Delhi 2. Geological Survey of India, Calcutta 3. Atomic Minerals Division, Hyderabad
15 Nov-3 Dec	Workshops on Forestry Development Planning for Countries of N.E. and S. Asia	Dehra Dun	Forest Research Institute
17-19	36th All India Agricultural Economics Conference	South Gujarat University	Indian Society of Agricultural Economics, Bombay
21 Nov-4 Dec	Intensive Course on Design and Technology of Digital Equipment	Bangalore	1. Indian Inst. of Science (Dept. of Electrical Communication Engg) 2. Indian Society for Tech. Educ. I.I.T Madras
24—26	Symposium on Computer Architecture and System Design	Delhi I.I.T.	I.I.T. Delhi (Elect. Engg. & Computer Centre)
29 Nov-12 Dec	Transportation System Engg.	Kanpur I.I.T	I.I.T. Kanpur

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
30 Nov-11 Dec Nov 76	3rd Advanced Financial Management Programme Community Service as Continuing Education	Agra or Jaipur	Management Association
Nov 76	Satellite Broadcasting	Bombay SNDT Women's University Delhi	Indian University Assoc. for Continuing Education and SNDTWU Institution of Electronics and Telecommunications Engineers, New Delhi
Nov 76	Seminar on Hydraulic Structures	Poona	Institute of Engineers (India) Poona centre
Nov 76	Seminar on Social Change in Modern Maharashtra	Kolhapur	Deptt of History, Shivaji University and UGC
Nov 76	Symposium to Commemorate the Diamond Jubilee of CWPRS Sub. 1. Modelling Techniques 2. Instrumentation 3. Research Management and National Goals	Poona	Central Water and Power Research Station, Poona
Nov-Dec	Advanced Regional Training Course in Biological Oceanography	Goa National Institute of Oceanography	1. NIO. and 2. UNESCO Reg. Office for Science & Technology
Nov-Dec	Operational Research in Health Delivery Systems	New Delhi Indian Council of Medical Research	ICMR and Nat. Ins. of Health Administration & Education.
December			
3-23	Turbulence in Fluid Flow	Kanpur	I.I.T. Kanpur
4-17	Systems Engineering	Kanpur	I.I.T. Kanpur
4-19	Experiments in Chemical Metallurgy	Kanpur	I.I.T. Kanpur
6-7	5th National Symposium on Refrigeration and Air Conditioning	Madras I.I.T	Nat. Committee of International Ins. of Refrigeration, I.I.T. Madras
6-18	Stability theory and Application in Engineering Structures	Kanpur	I.I.T. Kanpur
6-25	Management of Production Systems	Kanpur	I.I.T. Kanpur
8-10	2nd National Symposium on Cryogenics	Madras I.I.T	Indian Cryogenic Council & I.I.T. Madras
9-10	National Seminar on Corrosion Management	Delhi	Nat. Productivity Council
9-11	Symposium on Vitamin and Carrier Function of Polyprenoids	Bangalore Indian Inst. of Science (Dept of Biochemistry)	UGC, ICAR, INSA, Min. of Defence and Dept. of Science & Technology
10-11	Seminar on Strategy for Stimulating Fertiliser Consumption	New Delhi Vigyan Bhavan	Fertiliser Association of India
10-12	3rd National Conference on I.C. Engines and Combustion	Roorkee	1. Dept. of Mech & Industrial Engg, University of Roorke 2. I.I.P. Dehra Dun 3. Int. Combustion Institute 4. Inst. of Engineers (India)

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
11—12	20th Technical Convention of the Institution of Electronics and Telecommunication Engineers	New Delhi	Institution of Electronics and Telecommunication Engineers, New Delhi
12—15	Annual Convention of Chemists 1976	Bangalore University	1. Indian Chemical Society 2. Institution of Chemists (India) 3. CSIR 4. Society of Biological Chemists
13-18	3rd Programme on Mining for non Mining Executives	Dhanbad	Indian School of Mines
13-23	14th Tuberculosis Control Seminar	Bangalore National TB Institute	Dir. General of Health Services through National Tuberculosis Institute
13-24	Heat Transfer in Casting and other Phase Change Problems	Kanpur I.I.T. Campus	I.I.T. Kanpur
14-17	Industrial Electrochemistry International Symposium on	Madras	Society for Advancement of Electrochemical Science and Technology Karaikudi
15 Dec-14 Jan 77	6th Health Planning Course	New Delhi	Nat. Institute of Health Administration and Education
18-19	4th Symposium on application of Soil Mechanics and Foundation Engineering	Calcutta	Indian Geotechnical Society C/o Institution of Engineers (India), New Delhi
20-24	Silver Jubilee Celebrations of the Dept. of Chemical Engineering	Bangalore	Indian Inst. of Science
20 Dec	5th Congress of International Yoga Teachers	Panchgani	
21-23	5th Annual Conference of the Orissa Mathematical Society	Berhampur	Berhampur University & Orissa Math. Soc.
24-26	42 Annual Conference of Indian Mathematical Society	Trivandrum	University of Kerala and Indian Mathematical Society
27-29	20th All India Science Teachers Association Conference	Allahabad	All India Science Teachers Association, New Delhi
27 Dec-1st Jan 77	Recent Advances in Mathematics and its Application	Varanasi (Banaras University)	Dept. of Mathematics B.H.U.
28-31	36th Annual Conference of Association of Surgeons of India	New Delhi	Association of Surgeons of India, P.G. Inst. of Med Edu. & Res., Chandigarh
29 Dec-1st Jan 77	Indo-British Conference on Engineering Production	Delhi I.I.T.	I.I.T. Delhi
29 Dec-5 Jan 77	6th International Polynological Conference	Lucknow	Birbal Sahni Inst. of Palaeobotany
30-1 Jan 77	Annual Conference of the Anatomical Society of India	Lucknow	A.S.I. King George's Medical College, Lucknow
Dec 76	Winter School on Solar Energy	Madras I.I.T.	Indian Society for Technical Education & I.I.T., Madras

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36th All India Agricultural Economic Conference	17-19 Nov
Agricultural Management Programme	12-25 Sep
Seminar on Strategy for Stimulating Fertiliser Consumption	10-11 Dec
Workshop on Forestry Development Planning for Countries of N.E. and S. Asia	15-3 Dec

Biological Sciences

6th International Polynological Conference	29 Dec-5 Jan 77
19th General Assembly Meeting of the International Union of Biological Sciences	26 Sep-5 Oct
Advanced Regional Training Course in Biological Oceanography	Nov-Dec
Advances in Reproductive biology of Animals	27-29 Sep
Annual General Meeting of Indian Society for the Study of Reproduction and Endocrinology	27-30 Oct
New Frontiers in Cytogenetics	Last week Sept or 1st week Oct
Symposium on Warm Water Zoo Plankton	14-19 Oct

Broadcasting

Satellite Broadcasting	November
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Computers and Automation

Application of Computer for Load Despatch	11-16 Oct
Instrumentation and Process Control	20-24 Sep
Intensive Course on Design and Technology of Digital Equipment	21-4 Dec
Low Cost Automation	8-18 Sep
Symposium on Computer and Control	30-31 Oct
Symposium on Computer Architecture and System Design	24-26 Nov

Economics

36th All India Agricultural Economic Conference	17-19 Nov
Seminar on Co-operation and Co-operatives	October
Workshop on Statistical Tools in Economics	Sep-Oct

Education

20th All India Science Teacher's Association Conference	27-29 Dec
All India Seminar on Teaching and Creativity in Art	7-8 Nov
Alternatives in Education I	2-6 Nov
Community Service as Continuing Education	Nov
Examination Reform in Higher Education and Evaluation Techniques	Oct-Nov
Super 8mm Loop Workshop	23 Sep-13 Oct
Teaching Technology	October

Energy

Winter School on Solar Energy	December
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Engineering

3rd National Conference on I.C. Engines and Combustion	10-12 Dec
4th Symposium on Application of Soil Mechanics and Foundation Engineering	18-19 Dec
5th National Symposium of Refrigeration and Air Conditioning	6-7 Dec
20th Technical Convention of the Institution of Electronics and Telecommunication Engineers	11-12 Dec
All India Seminar on Reliability in Electronics	September
Heat Transfer in Casting and other Phase Change Problems	13-24 Dec
Indo-British Conference on Engineering Production	29 Dec-1st Jan 77
National Symposium on Hydrological Problems Related to Development of Power and Industries	27-29 Sep
Raw materials Technology for cement Manufacture	13-18 Sep
Machine Tool Elements	6-18 Sep
National Seminar on Corrosion Management	9-10 Dec
Seminar on Hydraulic Structures	November
Silver Jubilee Celebrations of the Dept. Of Chemical Engineering	20-24 Dec
Stability Theory and Application in Engineering Structures	6-18 Dec
Symposium on Electron Devices and Components	13-14 Nov
Symposium to Commemorate the Diamond Jubilee of CWPRS	
Subjects—1. Modelling techniques in Hydraulic Engineering	
2. Instrumentation	
3. Research Management and National Goals	November

Systems Engineering	4-17 Dec
Winter School in Engineering Applications of Lasers and Laser Systems	18 Oct-1 Nov
Geology	
Rock Mechanics Applied to Hard Rock Mining	1-6 Nov
Seminar on Himalayan Geology	13-17 Sep
Symposium on Archaean Geochemistry	15-18 Nov
Symposium on Tropical Monsoons	8-10 Sep
Librarianship	
Annual Conference of the Indian Library Association	6-10 Oct
Management	
3rd Advanced Financial Management Programme	30 Nov-11 Dec
4th Advanced Personnel Management Programme	7-18 Sep
Integrated Materials Management	6-11 Sep
Maintenance Management	2- 7 Nov
Maintenance Management	6-18 Sep
Management of Production Systems	6-25 Dec
Manpower Planning and Development	13-16 Sep
Materials Management	26-30 Oct
Workers Participation in Management	27-28 Sep
Mathematics	
5th Annual Conference of the Orissa Mathematical Society	21-23 Dec
42 Annual Conference of Indian Mathematical Society	24-26 Dec
Recent Advances in Mathematics and its Applications	27 Dec-1st Jan 77
Seminar on Functional Analysis and its Applications	3- 8 Nov
Medical and Health Sciences	
5th Congress of International Yoga Teachers	20 Dec
6th Health Planning Course	15 Dec-17 Jan 77
9th International Diabetes Congress	31 Oct- 5 Nov
10th Urology Sectional Conference	11-12 Sep
14th Tuberculosis Control Seminar	13-23 Dec
19th Hospital Administration Course	9 Nov- 8 Dec
36th Annual Conference of Association of Surgeons of India	28-31 Dec
45th Annual General Meeting of the Society of Biological Chemists (India)	12-14 Nov
Alternatives in Health Delivery Care Systems	28-31 Oct
Annual Conference of the Anatomical Society of India	30-1 Jan 77
Mid Term Conference of the Cardiological Society of India and the Thoracic Surgery Section of Association of Surgeons of India	September
Nutrition Workshop for Journalists	14-15 Oct
Operational Research in Health Delivery Systems	Nov-Dec
Pharmaceutical and Fine Chemical Industry in India : Present Status and Future Development	6 Nov
Symposium on Vitamin and Carrier Function of Polyprenoids	9-11 Dec
Metallurgy	
Experiments in Chemical Metallurgy	4-19 Dec
Mining	
3rd Programme on Mining for Non-Mining Executives	13-18 Dec
Opencast Mining	25 Oct-5 Nov
Physics and Chemistry	
2nd National Symposium on Cryogenics	8-10 Dec
3rd High Energy Physics Symposium	1-5 Nov
Annual Convention of Chemists 1976	12-15 Dec
Industrial Electro-Chemistry, International Symposium on I.I.T. Campus	14-17 Dec
Turbulence in Fluid Flow	3-23 Dec
Plastics	
Fibre Reinforced Plastics Technology	11-16 Oct
Social Sciences	
The Concept of man : Perspectives from the Social Sciences	11-16 Oct
Legal Control of Environmental Pollution	Sep-Oct
Seminar on Social Change in Modern Maharashtra	November
Transport	
Transport Management	20-30 Sep
Transportation Systems Engineering	29 Nov-12 Dec

(Courtesy : British Council)

CLASSIFIED ADVERTISEMENTS

INDIAN SCHOOL OF MINES DHANBAD 826004

Advertisement No. 420026/76

Dated Aug. 19, 1976.

Indian School of Mines, a deemed University under the University Grants Commission Act, 1956, wishes to recruit:

an Assistant Registrar (Accounts and Audit)

in the revised pay-scale of Rs. 700-1300/-plus allowances admissible under rules. Total emoluments at the minimum of the scale work out to Rs. 986.50.

Job Description: Responsibility for internal audit of all receipts and payments, management of funds, ensuring proper record maintenance, and overall responsibility for all financial matters of the School.

Qualifications:

- (i) Master's degree in Commerce (with at least 60 percent marks relaxable in case candidates otherwise considered suitable) or a Pass in Intermediate examination of the Institute of Chartered Accountants or Institute of Cost and Works Accountants (Essential).
- (ii) Experience for at least five years (including at least two years in a supervisory capacity) in maintenance and management of accounts in a large educational/research institution or industrial undertaking (Essential).

Knowledge of Hindi desirable.

General: Age not to exceed 35 years. Age and qualifications relaxable in case of specially experienced candidates. Applications on plain paper giving the following details should reach the Registrar, Indian School of Mines, Dhanbad Pin 826004, by 25th Sept, 1976.

- 1.1 Name in full and address (in capital letters) 1.2 Date of birth 2.1 Nationality 2.2 State if Scheduled Caste/Tribe. (In such cases, certificates from appropriate authorities to be attached) 3.1 Particulars of academic and technical qualifications 3.2 Details of experience/position held, nature of duties, scale of pay (and last pay drawn), etc. 4.1 Minimum salary acceptable 4.2 Minimum notice required 5. Additional information, if any.

Applications shall be accompanied by a Money Order receipt for Rs. 8/- (Rs. 2/- for Scheduled Caste/Tribe candidates) showing that the amount has been sent to the Registrar, Indian School of Mines, as application Fee.

Persons in service should apply through proper channel. An advance copy may be sent but the original application should invariably reach this office within 15 days of the last date prescribed above for receipt of applications. Other things being equal, preference will be given to Scheduled Caste/Tribe candidates.

The School reserves the right to consider cases of 'Contact candidates' even though they have not formally applied for the post.

Candidates called for interview will be paid single First class railway fare each way by the shortest route for appearing at the interview. Persons selected for appointment will have to join immediately.

M. S. Ramamurthy
REGISTRAR

LUCKNOW UNIVERSITY

Advertisement No. 25/1976

A—Applications are invited for the following posts:—

1. One Professor of Applied Economics in the grade of Rs. 1500-60-1800-100-2000-125/2-2500.

QUALIFICATIONS:

Essential—1. (a) A doctorate in the subject of study concerned or a published work of a high standard in that subject; and (b) Consistently good academic record (that is to say, the overall record of all assessments throughout the academic career of a candidate) with first class or high second class (that is to say with an aggregate of more than 54 percent marks) Master's degree in the subject concerned or equivalent degree of a foreign University in such subject. Candidate possessing essential degree qualifications in Economics will also be eligible for the post.

Where the Selection Committee is of the opinion that the research work of a candidate as evidenced either by his thesis or by his published work is of a very high standard, it may relax any of the qualifications specified in sub-clause (b) of clause (1).

2. Experience of teaching post-graduate classes for not less than seven years and/or of having conducted and successfully guided research work for seven years in a recognised institution, and having published work of high standard in the subject concerned.

Preferential: High academic distinctions.

Readers in the grade of Rs. 1200-50-1300-60-1900

2. One Reader in Arabic
3. Three Readers in Chemistry
4. Two Readers in Zoology
5. One Reader in Bio-Chemistry

QUALIFICATIONS:

Essential—1. (a) A doctorate in the subject of study concerned or a published work of a high standard in that subject; and (b) consistently good academic record (that is to say, the overall record of all assessments throughout the academic career of a candidate) with first class or high second class (that is to say, with an aggregate of more than 54 percent marks) Master's degree in the subject concerned or equivalent degree of a foreign University in such subject.

Where the Selection Committee is of the opinion that the research work of a candidate as evidenced either by his thesis or by his published work is of a very high standard, it may relax any of the qualifications specified in sub-clause (b) of clause (1).

2. Experience of teaching honours/postgraduate classes for not less than five years and published research work of high standard in the subject.

Preferential—Experience of teaching post-graduate classes and guiding research.

Lecturers in the grade of Rs.700-40-1100-50-1600:

6. One temporary Lecturer in English
7. One Lecturer in Psychology
8. One Lecturer in Urdu
9. One Lecturer in Political Science
10. One permanent and one temporary Lecturer in Physics
11. Two temporary Lecturers in Chemistry.

QUALIFICATIONS:

Essential—1. (a) a doctorate in the subject of study concerned or a published work of a high standard in that subject; and (b) consistently good academic record (that is to say, the overall record of all assessments throughout the academic career of a candidate) with first class or high second class (that is to say, with an aggregate of more than 54 percent marks) Master's degree in the subject concerned or equivalent degree of a foreign University in such subject.

Where the Selection Committee is of the opinion that the research work of a candidate as evidenced either by his thesis or by his published work is of a very high standard, it may relax any of the qualifications specified in sub-clause (b) *supra*.

Preferential—Experience of teaching degree/honours/post-graduate classes for two years.

B. Applications are also invited for the following posts:—

12. One Part-time Lecturer in Bengali on Rs.100/- p.m.
13. One Part-time Lecturer in Marathi on Rs. 100/- p.m.
14. Two Part-time Lecturers in Military Science on Rs.150/- p.m. each.
15. One Part-time Lecturer in Sanskrit on Rs. 150/- p.m.
16. Two Field Work Supervisors in Social Work in the grade of Rs. 200-15-350.
17. Two Research Assistants in Public Administration on Rs. 200/- p.m. each.
18. One Statistical Assistant in Economics in the grade of Rs. 200-15-350.
19. One Research Assistant in Economics in the grade of Rs.200-15-350.
20. One Research Fellow in Psychology in the grade of Rs. 200-15-350.
21. One Research Assistant in Psychology in the grade of Rs. 200-15-350.
22. One Research Assistant to Professor of Zoology in the grade of Rs. 200-15-350
23. One temporary Research Assistant to the Professor of Botany in the grade of Rs. 200-15-350.

QUALIFICATIONS:

Essential—First or high Second class Master's Degree in the subject concerned

with a good academic record. For posts in Language candidates possessing equivalent Diplomas in the Language concerned are also eligible.

Preferential—Experience of conducting research in a recognised institution.

GENERAL:

For purposes of qualifications required for the above posts, the Degree obtained in a subject taught in a Department, which is subsequently constituted into separate Departments, shall be deemed to be Degree in the subject concerned for the newly constituted Departments.

Benefits of Provident Fund available as admissible under the rules on confirmation for permanent posts. Period of probation for permanent posts is one year. It is not necessary to fill any/all of the advertised posts.

For the posts of Lecturers other things being equal, preference will be given to Scheduled Castes/Scheduled Tribes candidates. The relative merit of candidates will be decided by the Selection Committee constituted for the purpose. Such candidates should indicate in their applications that they belong to Scheduled Castes/Scheduled Tribes attaching Certificate from the District Magistrate of the District to which they belong. No other certificate for this purpose will be entertained.

Applications on the prescribed form (available on request, accompanied with a self-addressed envelope of size 23 cm x 10 cm, free of cost from the Office of the Registrar) with recent testimonials, publications etc. should reach the Registrar, Lucknow University by Friday, September 10, 1976. The candidates who are in service, must send their applications through the proper channel. Application Forms to outstation candidates will be issued by post upto Friday, September 3, 1976.

S.K. Goswami
REGISTRAR

INDIAN INSTITUTE OF
TECHNOLOGY, KANPUR
IIT POST OFFICE
KANPUR

ADVERTISEMENT NO. 24/76

Applications are invited for six posts of Assistant Professor/Lecturer, in the scale of Rs. 1200-50-1300-60-1900 and Rs. 700-40-1100-50-1600 respectively in the Department of Metallurgical Engineering of this Institute. One post of Lecturer is reserved for Scheduled Caste/Scheduled Tribe candidates. In the event of non-availability of SC/ST candidate, the reserved post would be treated as unreserved. The department is seeking post individuals with ability and aptitude for teaching, research and development in the areas of Physical and Extractive Metallurgy with specialization in

1. Alloy Steel
2. Mechanical Processing
3. Physics of Solids
4. Nuclear Materials (Including Mechanical Properties)

5. Iron and Steel Making
6. High temperature process metallurgy.

QUALIFICATIONS: For the post of Assistant Professor

- (a) **Essential:** i. A consistently good academic record in specified (or related) areas of specialization.
ii. Doctorate Degree with at least 5 years experience in teaching/research/industry with a satisfactory record and a record of independent research / developmental activity beyond thesis work.

OR

M. Tech. (or equivalent) degree with at least ten years of practical experience in a position of responsibility in a public or private undertaking with a record of significant and meaningful development/project activity

- (b) **Desirable:** Publications in referred Journals/ Patents.

QUALIFICATIONS: For the post of Lecturer

- (a) **Essential:** i. A consistently good academic record in specified (or related) areas of specialization.

ii. Doctorate degree

OR

M. Tech. (or equivalent) degrees with atleast four years of practical experience in a public or private undertaking with a record of personal accomplishments in developmental/ project activity.

- (b) **Desirable:** Some teaching/ research/industrial experience with a publication record and a strong interest in undergraduate/ postgraduate programmes including laboratory and curriculum development and also research and development activities of relevance to national needs.

In exceptionally meritorious cases, the Selection Committee may relax the required number of years of experience for all posts.

Posts are permanent and carry retirement benefits in the form of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-Cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years.

During the first year the appointment will be on probation. Besides pay, posts carry allowances according to Institute Rules, which at present correspond to those admissible to Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare for travel inside India, from the place of duty to Kanpur and back by the shortest route.

The Indian Institute of Technology, Kanpur has well equipped laboratories and central facilities. The Computer Centre has I.B.M. 7044, 1401 and 1800 and PDP 1 systems as also ECIL TDC 316 and a group of experienced programmers. The following central facilities are available, 2 Mv Van de Graaff accelerator, 4096 multi channel analyser and other radiation detection equipment, Liquid nitrogen and liquid helium plants, NMR, EPR, Mass Spectrometer, X-Ray, plant, UV and IR Spectrometers, glass blowing shop, crystal growth facility, central instrumentation laboratory, precision machine shop, electron microscope besides a large workshop for the fabrication of specialised research apparatus. The Institute has a well stocked library with more than 1,50,000 volumes and 1,300 periodicals. The campus facilities include primary and higher secondary schools, a health centre and a shopping centre.

Applications should be made on the prescribed forms obtainable free of charge from the Registrar of the Institute by sending a self addressed unstamped envelope of 25 x 10 cms. size. (Applications should be accompanied by a Indian Postal order of Rs. 7.50 (Rs. 1.87 for SC/ST candidates)

Those abroad may apply on plain paper giving full particulars including the Department and area of interest. They should give names of three experts who can comment on the work and competence of the applicant.

All applications should reach the Registrar, Indian Institute of Technology, Kanpur, IIT Post Office, Kanpur-208016 U.P. by September 15, 1976.

Candidates selected will be expected to join the Department at the earliest.

ANDHRA UNIVERSITY

Advertisement

Applications in the prescribed form are invited for the following posts so as to reach the Registrar, Andhra University, Waltair, on or before

September 15, 1976. Each application shall be accompanied by a crossed Indian Postal Order for Rs. 10/- (Rupees ten only) or a bank receipt remitting that

amount in the State Bank of India to the credit of A.U. General Account (Ordinary) towards the Registration Fee for the application.

Subject	Professor	Reader	Lecturer
Environmental Sciences (New Energy System)	1	—	—
Cooperation and Applied Economics (Temp.)	1	—	—
Commerce	1	3	—
Management Studies for M.B.A. Programme	2	3	4 1*
Civil Engineering (Public Health Engg)	—	1	—
Social Work	—	—	2
Fine Arts	—	—	1
Psychology & Parapsychology	—	—	1 1*
Physics	—	—	3

JUNIOR RESEARCH FELLOWSHIPS

1 in Biological Sciences

1 in Philosophy

U.D. Stenographer 1

Qualifications for the post of Stenographer. Should be a Graduate and Typewriting and Shorthand—Higher Grade. Age as on 1.7.76 should not exceed 28 years.

Note: The rule of reservation of appointment for SC/ST/BC candidates is applicable for the above posts.

SCALE OF PAY:

Professor	Rs. 1100-50-1300-60-1600
Reader	Rs. 700-50-1250
Lecturer/Research Associate	Rs. 400-40-800-50-950
Research Assistant and Junior Research Fellowships	Rs. 400/- fixed PM
Stenographer	Rs. 310-14-380-15-560 plus Rs. 35/- shorthand allowance

The details of qualifications prescribed in respect of each post including the particulars and precise branch of specialisation which is needed and also the preferential qualifications considered desirable will be furnished along with the application form.

Requisition for the application forms may be made to SHRI P. HANUMANTHA RAO, DEPUTY REGISTRAR, ANDHRA UNIVERSITY, WALTAIR, accompanied by a self addressed and stamped envelope and a State Bank of India Challan or Crossed Indian Postal Order for one Rupee. The University reserves the right to fill or not to fill all or any of the posts. The cover containing the applications should be superscribed as "APPLICATION FOR APPOINTMENT TO THE POST OF....."

M Gopalakrishna Reddy
REGISTRAR

ALIGARH MUSLIM UNIVERSITY ALIGARH

Advertisement No. 10/76-77

Applications are invited on the prescribed form for the post of Principal,

Jawahar Lal Nehru Medical College, A. M. U. Aligarh.

Scale:

Rs. 1600-100-2000 (likely to be revised) plus D. A. as admissible under rules and non-practising allowance provided he is also Professor of the subject of his specialisation with clinical duties attached to it.

Candidates must possess a Medical qualification included in the first or second schedule or part II of the third Schedule (other than licentiate qualifications) of the Indian Medical Council Act, 1956. Holders of the educational qualifications included in Part II of the third Schedule should fulfil the conditions stipulated in Section 13(3) of the I. M. C. Act, 1956. Must possess a basic University or equivalent qualification entered in schedules under State/Central Medical Registration Act.

Qualifications:

M. D./M. S., M. R. C. P./F. R. C.P./F. R. C. S. or an equivalent qualification in any branch of Medical Science. At least five years experience as Professor in a Medical College.

Preference will be given to those who have long experience as Professor/Head of a Department or Principal of a Medical College particularly those who have held responsible position connected with the establishment of a teaching hospital.

The Principal of the College will also have to work as the Chief Superintendent of the Medical College Hospital.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 23x10 cm. Last date for receipt of applications is 25th September, 1976. Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T. A. equal to one single second class railway fare only.

REGISTRAR

UNIVERSITY OF JODHPUR
(Establishment Section)

No. JDR:U:ESTT:24219-78

August, 28, 1976.

Advertisement No. 13/76

Applications are invited for the post of an Assistant Registrar in the scale of Rs. 375-25-550-30-850.

Post carries allowances & other benefits as may be admissible under the rules of the University from time to time.

Qualifications: Essential:

(a) Bachelor's degree from a recognized University, (b) Experience of about 7 years in a supervisory capacity in a University, Board of Secondary Education, Educational Institute of repute or College of post-graduate standard.

Desirable:

(1) S. A. S. or Chartered Accountant with practical experience of conducting internal audit and thorough knowledge of Rajasthan Service Rules and G.F. & A.R.

Qualifications as mentioned above may be relaxed in case of candidate who is otherwise found suitable. Higher starting salary is possible to exceptionally qualified candidate.

Application form can be obtained from the undersigned for which a crossed Indian Postal Order for Rs. 2/- endorsed in favour of the Registrar, University of Jodhpur payable at Jodhpur be sent along with a self addressed envelope of 24 x 11 cms. bearing postage stamp of 85 paise. The last date for receipt of application is 18-9-1976. The Vice-Chancellor may at his discretion condone delay in receipt of applications.

REGISTRAR

GURU NANAK DEV UNIVERSITY
AMRITSAR

Advertisement No. 22/76

Applications are invited for the following posts on prescribed form obtainable (free of cost) from Office of Registrar, Guru Nanak Dev University, Amritsar by making written request accompanied by a self addressed stamped envelope of 23 x 10 cms. so as to reach this office by September 18, 1976 along with Indian Postal Order(s) for Rs. 7.50 for posts at Sr. No. 1 to 4 and Rs. 5/- for post at Sr. No. 5 drawn in favour of Registrar, Guru Nanak Dev University, Amritsar.

1. Professor of Punjabi Language, Literature & Culture:
(Grade Rs. 1500-60-1800-100-2000-125/2-2500).
2. Lecturer in Persian:
(Grade Rs. 700-40-1100-50-1600).
3. Lecturers in Guru Nanak Studies—3:
(Grade Rs. 700-40-1100-50-1600).
4. Manager University Press:
(Grade Rs. 400-40-800/50-950).
5. Research Fellows in Economics—2:
(Rs. 400/- p.m. fixed).

Qualifications:

For the Post at Sr. No. 1: Essential:

- (i) Consistently good academic record with 1st or high Second

Class (B+) Master's degree of Indian University or equivalent qualification of foreign University in the subject of Punjabi;

- (ii) Either degree of Ph.D. or equivalent research degree or published research work of high standard relating to any major field of Punjabi Language, Literature or Culture;
- (iii) Master's or Honours or any other high degree in Persian;
- (iv) At least ten years' post-graduate teaching experience in Punjabi with experience of guiding doctoral research.

Desirable:

- (i) Proficiency in editing of manuscripts (Gurmukhi and Persian Scripts) and lexicography;
- (ii) An insight into Indian, Persian and Indo-European grammatical studies;
- (iii) A thorough knowledge of art of publication and printing of books.

For post at Sr. No. 2:

- (i) Consistently good academic record with 1st or High Second Class (B+) Master's degree in a relevant subject or an equivalent degree of a foreign University;
- (ii) Either the degree of Ph.D. or an equivalent research degree or published research work of a high standard;
- (iii) Teaching research experience will be an additional qualification;
- (iv) Knowledge of Punjabi and a foreign language other than English will be an additional qualification.

For Posts at Sr. No. 3:

- (i) Consistently good academic record with first or high Second class (B+) Master's degree or an equivalent degree of a foreign University in Urdu;
- (ii) Either the degree of Ph.D. or an equivalent Research Degree in Urdu or published research work of a high standard;
- (iii) Experience of translating high medieval Punjabi or Hindi literature into Urdu;
- (iv) Knowledge of Punjabi and Sikh Scriptures.

Desirable:

- (i) Proficiency in Sanskrit/Hindi/Persian

NOTE:

- (i) Established creative writers, with thorough knowledge of Sikh Scriptures / Punjabi / Hindi, who do not fulfil all the prescribed conditions may be considered if persons with requisite qualifications are not available.
- (ii) Persons who had already applied in response to our advertisement No. 9/76 need not apply again.

For post at Sr. No. 4:

- (i) Graduate from an Indian University or an equivalent qualification from a foreign University;
- (ii) Diploma Course in Printing Technology from a recognized Institution; (iii) At least 5 years

practical experience of working in a first rate printing press.

NOTE:

Qualifications (i) and (ii) may be relaxed in case of persons with exceptionally long practical experience.

For posts at Sr. No. 5:

At least good second division in M.A. Economics and a good overall academic record.

Ranpreet Singh
REGISTRAR

THE UNIVERSITY OF BURDWAN
WEST BENGAL

Advertisement No. 19

Dated the 24th August, 1976

Applications on plain paper (six copies) incorporating complete Bio-data stating percentage of marks from Matric/S.F./H.S. to last University Examination passed, are invited for the following posts:

- | | |
|-------------------------|--|
| 1. English: | Reader—One |
| 2. History: | Reader—One |
| 3. Geography: | Reader—One |
| 4. Botany: | Reader—One |
| 5. Pol Science: | Lecturer—Two
(One is temporary against study leave vacancy) |
| 6. Philosophy: | Lecturer—One
(Temporary against study leave vacancy) |
| 7. Commerce | Lecturer—Two |
| 8. Physics: | Lecturer—One |
| 9. Zoology: | Lecturer—Four |
| 10. Mathematics (Pure): | Lecturer—One |

Scale of Pay:

Reader: Rs. 1200-50-1300-60-1900

Lecturer: Rs. 700-40-1100-50-1600

with admissible allowances and contributory Provident Fund benefits. The posts at serial 1, 2 and 3 are permanent. Those who applied earlier for these posts need not apply again. Persons appointed will be on probation for one year. The other posts excepting one under Sl 5 and the post at Sl 6 are permanent but lien bound at present. Persons appointed are likely to be confirmed after one year's approved service provided the respective posts become lien-free.

Minimum Qualification:

- (a) Doctorate degree or Published work of an equally high standard; and
- (b) Consistently good academic record with 1st or high 2nd class (B+) Master's Degree in the subject or an equivalent degree of a Foreign University.

Additional requirements for Readership:

- (i) At least five years' teaching experience in post-graduate class.
- (ii) ability to Supervise Research Work,
- (iii) Publication of sufficient merit.

Desirable:

Doctorate degree in any of the fields of specialisation stated below; Research publications of high order.

Specialisations required:

for 1—Comparative Literature.
for 2—Medieval Indian History.

- for 3—Economic and/or Social Geography.
 for 4—Embryology/Genetics & Plant Breeding/Mycology & Plant Pathology / Plant Physiology & Bio Chemistry / Micro-Biology/ Systematic Botany.
 for 5—for permanent post—Local Government, for temporary post —Political Theory and Methodology.
 for 6—Symbolic Logic
 for 7—for one post—Accounting and ability to teach Taxation at the Post-graduate level.
 for the other—Accounting and Financial Control/Quantitative Methods / Organisational Behaviour.
 for 8—Theoretical Physics.
 for 9—Entomology / Parasitology / Fisheries / Ecology / Physiology/ Biochemistry / General Zoology
 for 10—Mathematical Logic / Algebra/ Complex Analysis / Operational Research.

Last date of receiving applications with requisite fee of Rs. 5/- (Payable either by cash to the University cash counter or by crossed I.P.O. drawn in favour of Finance Officer of the University) is 18th September 1976.

A. K. Banerji
 REGISTRAR

MARATHWADA UNIVERSITY No. ESTT/DEPT/ADVT/6

Applications are invited for the following posts:—

Readers (Pay scale Rs. 700-50-1250) in Bio-chemistry, Organic Chemistry and Hindi— one each.

Lecturers (Pay scale Rs. 400-40-800-50-950) in Zoology and Commerce— One each.

The scales of pay carry with them the benefits of Dearness Allowance in accordance with the rules of the University and the same are likely to be revised. Out of the posts of Lecturers mentioned in this advertisement, 34% posts are reserved for candidates belonging to Scheduled Castes, Scheduled Tribes and Other Backward Classes.

Reader:

At least a Second Class Master's Degree in the subject. A Research Degree of an Indian or Foreign University of a Doctorate standard and/or published work of an acknowledged merit in the subject.

Five year's teaching experience in the University or College, preferably wholly at Post-graduate level. Research experience and ability to undertake and guide research in the subject will be considered a desirable qualification.

Lecturer:

At least a Second Class Master's Degree in the subject from a recognised University and/or a Research Degree of a Doctorate standard and/or research publications of acknowledged merit in the subject.

Ordinarily Five Years' teaching experience to degree and/or Post-graduate Classes.

Candidate applying for the posts of Readers should ordinarily be below the age of 45 and those applying for the posts of Lecturers should ordinarily be below the age of 35 years. The age limit may be relaxed in the cases of deserving candidates.

Eight copies of applications together with Eight copies of each of the testimonials, if any, separately for each post giving particulars in the prescribed form alongwith a Postal Order of Rs. 3/- should be sent to the Registrar so as to reach him not later than SEPTEMBER 30, 1976. Testimonials should be attested by a member of the Senate of Marathwada University or by a Gazetted Officer. The prescribed applications forms will be supplied to the candidates on request accompanied by a self addressed envelope (23 x 10 cms) bearing Postal Stamps worth (70) paise for the postage separately for each post.

Candidates, who are employed at present, must submit their applications through their employers.

Canvassing, direct or indirect, will be a disqualification.

University Campus,

Aurangabad

S.B. Chavan
 REGISTRAR

MARATHWADA UNIVERSITY

NO. ESTT/DEPT/ADVT/6

In continuation of the advertisement No. ESTT/DEPT/ADVT/4 dated JULY 16, 1976, it is hereby notified for the information of all concerned that the last date for submission of applications for the posts of Professors, Readers and Lecturers has been extended from August 30, 1976 to September 15, 1976.

REGISTRAR

University Campus,
 Aurangabad.

PUNJABI UNIVERSITY PATIALA

Advertisement No. 103/SPS/Estt. 76/UN
 Applications are invited for appointment to the following posts:—

1. Professors-Physics (Two)
 Philosophy (one) Religious Studies (one).
 (Rs. 1500-60-1800-100-2000-1252-2500).
2. Readers in Physics—(Five).
 (Rs. 1200-50-1300-60-1900)
3. Lecturers in Physics (Five)
 (Rs. 700-40-1100-50-1600)

Qualifications:

- (a) A Doctor's degree or published work of an equally high standard in the relevant subject; and
- (b) consistently good academic record with 1st or high second class (b+) Master's degree in the relevant subject or an equivalent degree of a foreign University.
- (c) Qualifications prescribed in (b) above are relaxable in case the research work of the candidate, as evident either from his thesis or from his published work, is of a very high standard. For post

at serial No. (3), if a candidate possessing a Doctor's degree or equivalent published work is not available or is not considered suitable, a person possessing consistently good academic record (due weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed on the condition that he obtains a Doctor's degree or gives evidence of published work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increment until he fulfils, these requirements.

(d) At least ten/five years' experience of teaching/research for the post of Professor/Reader.

(e) Persons with experience of teaching will be preferred for the posts of Lecturers.

Additional Qualifications Professors—Physics.

For the first post: Specialization in Experimental Nuclear Physics and sufficient experience of organising and running postgraduate teaching laboratories and should be conversant with modern techniques used in experimental Physics.

For the second post: Specialization in theoretical Physics and sufficient experience of teaching various papers in Theoretical Physics at Post-graduate level and should be conversant with modern techniques used in Theoretical Physics.

Religious Studies

Ph. D. should be in any area of India's religious tradition, with independent published research work of high quality. Ten years' experience of teaching post-graduate classes as well as experience of guiding research.

Master's degree should be in Religious Studies/Philosophy/History.

Candidates must have good knowledge of at least one of the classical language of India and be familiar with the history and doctrines of the major religions of Indian origin, i.e., Hinduism, Buddhism, Jainism and Sikhism.

Readers in Physics

Candidates should have sufficient experience of teaching, research and handling laboratories at post-graduate level in any one of the following fields of specializations:—

Meteorology/Atmospheric Physics/
 Laser Physics/Materials Science/Low
 Temperature Physics/Nuclear Physics/
 Modern Spectroscopy/Electronics.

Lecturers in Physics

Candidates should be M. Sc. in Physics/Meteorology or M. E./M. Tech. in the relevant subject with specialisations in one of the following:—

- (i) Radiation Physics.
- (ii) Microwave Communication.
- (iii) T. V. Electronics.
- (iv) Neutron Physics.
- (v) Chemical Physics.
- (vi) Computer Science.

- (vii) Electronic Instrumentation.
- (viii) Meteorology.
- (ix) Metallurgy.
- (x) Ionospheric Physics;
- (xi) Solar Physics and
- (xii) Solid State Physics
- 4. Cartographer in Geography
(Rs. 350-25-600).

Qualifications:

Either a second class M. A./M.Sc. in Geography with specialisation in Cartography preferably evidenced by practical work experience in map drawing and reproduction OR a second class B. A./B. Sc. with Geography as one of the elective subjects having a minimum of four years practical experience in geographic cartography in a Geography department or some large Cartographic Laboratory.

5. Research Scholars in Botany

(Tenable for a period of two years in the first instance @ Rs. 400/- p. m. all inclusive.)

Qualifications

Candidate should possess at least second class Master's degree in the subject of Botany with at least one year's teaching/research experience after obtaining the Master's degree provided that the condition of experience may be relaxed in the case of first class M. Sc. Provided further that candidates with at least 55% marks both in B. Sc. and M. Sc. could also be considered in case no first class M. Sc. is available.

6. Junior Research Fellow (U. G. C.) in Chemistry (in any major area of Chemistry (Rs. 400/- p. m. all inclusive for first two years and Rs. 500/-p. m. all inclusive for subsequent two years).

Qualifications

Junior Research Fellowships is open to persons preferably below the age of 30 years who have at least one year's teaching/research experience after obtaining Master's degree in the relevant subject in the first or second class. Provided that in the case of first class M. Sc. the condition of one year's experience may not be insisted upon. Provided further that the condition of one year's research/teaching experience may be relaxed with the sanction of the Vice-Chancellor in the case of 2nd class M.Sc. having at least 55% marks each in B. Sc. and M. Sc. examinations and also where selection committee is satisfied about the research potential of a candidate and no first class M. Sc. is available.

7. Research Fellows (Deptt. of Botany) (Rs. 500/- p. m.) (All inclusive)

1st class M. Sc. in the subject of Botany with two years research experience. Persons having experience of undertaking botanical excursions in connection with their research work on wild plants in the field of Cytology and Morphology will be preferred.

General

Higher start within the grade admissible depending upon the ability and experience of the candidate.

House rent and Dearness allowance, Provident Fund and Medical facilities according to University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed postal order worth Rs. 5/- (Rs. 2/- for candidates belonging to Scheduled Castes/Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala, should reach the University by 12-9-76. The forms can be had from the Superintendent (Establishment) by sending a self-addressed envelope of the size of 23x10 cms. stamped with 25 paise postage.

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by 15-9-76.

Gurpartap Singh

REGISTRAR

PANJAB UNIVERSITY

(Chandigarh)

Advertisement No. 16/76

Applications are invited for the following posts in the Directorate of Correspondence Courses for Post-Graduate & Undergraduate teaching so as to reach the Registrar, Panjab University, Chandigarh by 30.9.1976 alongwith postal orders for Rs. 750 each.

Posts and Pay scales

1. READERS (Rs. 1200-50-1300-60-1400)

1. English	2
2. Political Science	2
3. Economics	2
4. History	3
5. Public Administration	3
6. Geography	1
7. Sanskrit	1
8. Mathematics	1
9. Philosophy	1
10. Psychology	1
11. Hindi	1
12. Punjabi	1
13. Commerce	1
14. Dip in Office Organisation & Procedures.	1

II. LECTURERS (Rs. 700-40-1100-50-1600)

1. English	3
2. Pol. Science	4
3. Economics	3
4. History	6
5. Public Administration	5
6. Geography	3
7. Sanskrit	2
8. Mathematics	1
9. Hindi	1
10. Punjabi	1
11. Commerce	7

Areas of specialization for the posts of Lecturers in Commerce:

(a) Business Management	1
(b) Accounting & Taxation	3
(c) Industrial & Commercial Law and Company Law.	2

(d) Office Organisation and Procedures.

READERS

Essential

- (i) A first or high second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the relevant subject with bright academic record.
- (ii) Either a research degree of doctoral standard or published research work of high standard in the subject concerned in journals of repute.
- (iii) About five years' experience of teaching postgraduate classes at a University or college level and experience of guiding research.

Desirable

- (a) Proficiency in Hindi and Punjabi
- (b) Experience in a recognised Institute of Correspondence Courses in a responsible academic capacity.

LECTURERS

- (i) A doctoral degree or published work of an equally high standard; and
- (ii) Consistently good academic record with first or high second class (B plus Master's degree in the relevant subject or an equivalent degree of a foreign University)

Provided that if the selection committee is of the view that the research work of a candidate as evident from either his thesis or from his published work is of very high standard it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctoral degree or equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record, (due weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed on the condition that he will have to obtain a Doctoral degree or give evidence of published work of equivalent high standard within five years of his appointment.

Desirable

- (a) Proficiency in Hindi and Punjabi
- (b) Experience in a recognised Institute of Correspondence Courses in a responsible academic capacity.

The incumbents are inter transferable with their counterparts in the Departments/Institutions of the University.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date will not be entertained. Serving employees may, however, send their applications on the prescribed proforma direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of

a 'No Objection Certificate' from their employers. Convincing to any from will disqualify a candidate.

Application forms can be obtained from the office of the Finance &

Development Officer, Panjab University, Chandigarh by making a written request accompanied with self-addressed stamped envelope of 23 x 10 cms.

MALAVIYA REGIONAL ENGINEERING COLLEGE, JAIPUR

No. F. 6 (21) Misc/Mrec/75/IV

Applications, on the prescribed forms, are invited for the following posts :-

S. No.	Designation	Scale of Pay
1.	Two Professors of Metallurgical Engineering.	1100-50-1300-60-1600.
2.	One Reader in Metallurgical Engineering.	700-40-1100-50/2-1250.
3.	Three Lecturers/Associate Lecturers in Metallurgical Engg. (one Provisional substantive)	For Lecturers : 400-400-450-30-600-35-670-EB-35-950. For Associate Lecturers : 375-25-500-30-590-EB-30-650
4.	One Assistant Proctor:	400-400-450-30-600-35-670-EB-35-950.
5.	Dy. Registrar (Admn & Exam.)	-do-
6.	One Assistant Librarian : (Lien vacancy)	375-25-500-30-590-EB-30-650
7.	Sampling Assistant :	180-10-220-15-385-20-425.
8.	One Laboratory Assistant : (Chemistry)	110-5-160-8-200-10-230.

QUALIFICATIONS

For Post at S NO. 1 : (a) Essential: I or II class degree in Metallurgical Engineering with about 8 years professional experience out of which about 5 years should be teaching experience in an Engineering College of degree standard and about two years should be of research or practical experience.

(b) Desirable: (i) Doctorate or Master's degree or original research work of repute (ii) Corporate membership of Professional Institutions.

For Post at S NO 2: (a) Essential: I or II class degree in Metallurgical Engineering with about 6 years professional experience which should include 3 years teaching experience in an Engineering College of degree standard. The requirement of teaching experience in an Engineering College of degree standard may be relaxed in case of a candidate otherwise found suitable. (b) Desirable: (i) Post Graduate Degree or research experience in Physical Metallurgy/Mechanical Metallurgy/Extractive Metallurgy. (ii) Corporate membership of Professional Institutions.

For Post at S. No. 3: (a) Essential: I or II class degree in Metallurgical Engineering. (b) Desirable: Post-Graduate Degree. For Lecturers 4 years experience after degree is obligatory. Persons with less than 4 years will be considered as Associate Lecturers.

For post at S. No. 4 : (a) Essential. I or II class degree either in Civil/ Mechanical / Electrical / Metallurgical Engineering with 4 years experience after degree examination

- (b) Desirable : (i) Teaching or professional experience.
(ii) Achievements in extra-curricular and co-curricular activities.
(iii) Experience in handling students matters.

(iv) Age not below 25 years.

For post at S No. 5 : Graduate with 10 years experience of office work in a responsible position including 5 years experience in the respective branch or three years experience of working on an administrative post in a University/ Educational Institution preferably in a technical autonomous Institution/ Government office

For post at S. No. 6 : Bachelor's degree with a diploma in Library Science with about 3 years professional experience.

For post at S. No. 7 : (a) Essential: Bachelor's degree of any recognised University in Science with Chemistry or Bio-Chemistry as a main subject (b) Desirable (i) Experience in Public Health Engineering/Bio-Chemistry/ Micro-Biology/Chemistry Laboratory (ii) Experience of the analysis of Water and Waste Water.

For Post at S.N. 8 : (a) Essential : Matriculation with Science as optional subject. (b) Desirable : Laboratory experience in an Educational Institution.

The number of posts to be filled may be changed at the discretion of College authorities. The College may call for interview only such applicants whom it may consider suitable. The application fee will not be refunded in any case. Persons if already working in the College on any of the above posts on purely temporary/adhoc basis should also apply.

Candidates who applied for post No. 5 in response to previous advertisement need not apply again as their applications would be considered in the light of the qualifications mentioned now.

The permanent posts carry the benefit of C.P.F. and Gratuity as per College Rules. Dearness Allowance is admissible as per rules framed from time to time. Candidates aged 55 years or above but below 60 years could be considered for appointment, if found suitable, either on

contract or on a temporary basis. separate application should be sent for each post. Higher starting pay is admissible in deserving cases. Application forms and other particulars may be obtained on sending Re. 1/- either in cash or in the form of crossed Indian Postal Order in favour of the undersigned payable at Jaipur alongwith a self addressed envelope not smaller than 24 cm x 10 cm stamped with 40 paise.

Last date for receipt of applications is 20-9-1976

D.L. Mehta
REGISTRAR

ROHTAK UNIVERSITY ROHTAK

Advertisement No. 8/76

APPLICATIONS on plain paper (through proper channel in the case of those already in employment) for the following posts in the Medical College, Rohtak, giving complete Bio-data i.e. name, father's/husband's name, date of birth, permanent and correspondence addresses, academic qualifications with distinctions/scholarships (if any), extra-curricular activities, teaching experience, number of failures in undergraduate/postgraduate career, alongwith (i) attested copies of certificates/testimonials and (ii) crossed Indian Postal Order (s) for Rs.7.50 drawn in favour of the Comptroller, Rohtak University, Rohtak, payable at Rohtak Post office, are invited so as to reach the Registrar, Rohtak University, Rohtak latest by 20th September 1976 Ex servicemen, Scheduled Castes/Tribes & Backward Classes candidates are exempted from the payment of application fee. Candidates should have adequate knowledge of Hindi.

2. Age: Not more than 50 years in the case of Head of the Department of Pharmacy and 40 years in the case of Chief Pharmacist as on 20.9.76 (relaxable in the case of exceptionally qualified/experienced persons). Age limit also relaxable by 5 years for candidates belonging to Scheduled Castes/Tribes of all States and Backward Classes of Haryana only. Concessions to Ex-E.C.Os/Servicemen, their dependents and certain other categories will be given by the University as per instructions of the State Governments.

3. Description of Posts:

(i) Head of the Department of Pharmacy. Grade: Rs. 1100-50-1300-60-1600/100-1800.

(ii) Chief Pharmacist. Grade: Rs.700-40-1100-50-1250. plus usual allowances as admissible under the rules.

4. Qualifications and Experience:

(i) Head of the Department of Pharmacy:

M.Pharm. preferably Ph.D. with 10 years' teaching experience.

(ii) Chief Pharmacist:

A graduate in Pharmacy with at least 5 years' experience after graduation in the manufacture of IV. Transfusion fluids in a Hospital Pharmacy or in an industry of repute.

REGISTRAR

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Acharya, B. D. Contributions to the theories of hypergraphs, graphoids and graphs. I.I.T., Bombay.
2. Agrawal, Laxman Prasad. Some methods of approximate solutions of nonlinear differential equations with applications to physical problems. University of Jabalpur.
3. Chakraborti, Mihir Kumar. Certain investigations on Banach spaces and fixed point of operators with allied topics. University of Kalyani.
4. Chattopadhyay, Santikumar. Classical and group-theoretic analysis of some problems of special functions. University of Calcutta.
5. Das, Asimananda Gobinda. Certain investigations on functions of bounded U-second variation and Stieltjes-type integrals. University of Kalyani.
6. Dhongade, Uttamrao Basharathrao. Some functional inequalities of Beliman Bihari type and their applications. Marathwada University.
7. Kulhara, K. G. Transform techniques in the study of Partial differential equations of physics and engineering. University of Jabalpur.
8. Majumdar, Manjusri. On some techniques on applied mathematics with applications. University of Calcutta.
9. Sinha, P. Lubrication theory for micropolar fluids. I.I.T., Bombay.
10. Tikam Singh. Expansion problems associated with Langerre and Hermite polynomials. Vikram University.

Operational Research

1. Kapoor, Khushdev Raj. Some models in reliability. University of Delhi.

Statistics

1. Govindarajulu, S. Some contributions to the theory of rank tests for the two-sample problem with censored samples. Sri Venkateswara University.
2. Tiwari, Harishchandra. Study of power of the test procedures using three preliminary tests of significance in random model. Vikram University.

Physics

1. Agarwal, J. K. K-Ar ages of Deccan and Rajmahal traps and associated dykes. University of Bombay.
2. Bandyopadhyay, Subhansu. Some studies on pole assignment in linear multivariable systems. University of Calcutta.
3. Kamath, S. Gopinath. Studies of relativistic form factors in $Su(6)_{W=3}$: Phenomenological versus harmonic oscillator versions. University of Delhi.
4. Lomash, Surender Kumar. Low temperature and magnetic field effects on n-GaAs transferred electron microwave devices. University of Delhi.
5. Matta, M. K. Effect of heat treatment and irradiation on mechanical properties of nickel, zirconium and their alloys. University of Bombay.
6. Ray, Jibanmay. A study of local environmental effects in Ni-Mn and Ni-Fe alloys by ^{57}Fe Mossbauer spectroscopy. University of Bombay.
7. Sanjay, Nihargopal. Studies in dual-input networks. University of Calcutta.
8. Sinha, Bedanta Kumar. Perturbed angular correlation studies in some liquid sources. University of Calcutta.
9. Yogeshwar Raj. Equation of state and some related properties of polymeric and monomeric materials. University of Delhi.

Chemistry

1. Ash, Sudhir Kumar. Metachromosia of cationic dyes induced by inorganic salts. University of Kalyani.

2. Batra, Veera. Chemical investigation of plants containing pyrrolizidine and quinolizidine alkaloids. University of Delhi.
3. Belekar, A.G. Studies on pure triacylglycerols and their mixtures. University of Bombay.
4. Biswas, Gadadhar. Equilibrium studies in mixed solvents. University of Calcutta.
5. Brar, Ajaib Singh. Physico-chemical characteristics of cobalt chalcogenides and their catalytic activities. I.I.T., Delhi.
6. Chauban, Shambhoo Singh. Physico-chemical studies of the complexes of bivalent metals with some hydroxy acids. Vikram University.
7. Das, Sunil Baran. Synthesis of spiro-compounds and studies in catalytic dehydrogenation. University of Kalyani.
8. Datta, Sompa. Studies on buffalo milk caseins: A new method for the determination of N-terminal amino acid sequence. University of Kalyani.
9. Havinala, Bhimagonda Revappa. Studies on some metal complexes. Karnatak University.
10. Jain, Nirmal Kumar. Study of kinetics of adsorption of aqueous solution of some poisons on activated molasses charcoal. Vikram University.
11. Jigajinni, Veerappa Basavanneppa. Synthetic studies in nitrogen heterocycles of pharmacological interest. Karnatak University.
12. Mandal, Nanigopal. Fluoro compounds of niobium. University of Kalyani.
13. Mandlik, Kanhyalal. Physico-chemical studies of Be (II) and Zn (II) complexes with some organic ligands. Vikram University.
14. Mitra, Samiran. Non-isothermal solid state thermal studies of inorganic compounds. University of Calcutta.
15. Mukhopadhyay, Prasanta Kumar. Synthesis of possible antifungal agents. University of Calcutta.
16. Mukhopadhyay, Ranjit Kumar. Studies on the chromyl chloride adducts with amines. University of Kalyani.
17. Niogi, Sushil Kumar. Structural studies and transformation of natural products. University of Kalyani.
18. Pardamani, Jasoda Hariram. Studies in dihydroxy naphthalenes and 4, 4'-dihydroxy diphenyl ether. M.S. University of Baroda.
19. Patel, S.A. Studies in O-hydroxy ketoximes and O-hydroxy anils as analytical reagents. Gujarat University.
20. Ranade, Vasant Shantaram. Chemistry of medicinal plants. Shivaji University.
21. Rastogi, Mahendra Kumar. Studies on the preparation and properties of some new organometallic compounds of tungsten (VI). University of Delhi.
22. Roy, Karna Chandra. Investigation on the complexes of chromium (III) and manganese (III). University of Kalyani.
23. Sarengi, Amiyakumar. Studies on vulcanisation of rubber. University of Calcutta.
24. Sarkar, Madhabi. Studies on naturally occurring heterocyclic compounds. University of Calcutta.
25. Sharma, Vandana. Spectrochemical properties of transition metal complexes with some amino acids. Vikram University.
26. Vaishnav, V. M. Basic amides and esters as local anesthetics. Gujarat University.
27. Warty, V. S. A study on the synthesis and properties of triacid triacylglycerols. University of Bombay.

Engineering & Technology

1. Gupta, Raj Kumar. On speed and torque regulation on induction motors using linear regulation theory. I.I.T., Delhi.
2. Ito, G. C. Analytical and experimental investigation of riverbed degradation. I.I.T., Bombay.
3. Kurma Rao, K. Analysis of initially bent and imperfect piles. I.I.T., Kanpur.

4. Mishra, Ashutosh. An analysis of residual stresses due to the grinding process. I.I.T., Delhi.
5. Sengupta, Saryendra Nath. Dynamic loads in commercial quality straight tooth spur gears. University of Burdwan.
6. Shishodia, Kharag Singh. Finite uniaxial compression under static loading. I.I.T., Delhi.

Earth Sciences

1. Sreedharan, C.R. Investigation of ozone distribution in the upper atmosphere with a new ozonesonde. University of Kerala.

BIOLOGICAL SCIENCES

Anthropology

1. Patel, Srisha. Anthropogenetic study of Tibetan refugees in Orissa. Berhampur University.

Biochemistry

1. Bapu Rao, S. Studies on vitamin B6. Osmania University.
2. Basu, Subhashchandra. Studies on the biosynthesis of neutral and acidic glycosphingolipids in eucaryotic cells. University of Calcutta.
3. Bera, Prabhash Chandra. Biochemical studies on the effects of hormones on membrane properties with special reference to neonatal administration of sex hormones on developing rat-brain. University of Calcutta.
4. Bhattacharyya, Jaganmav. Biochemical and nutritional studies of the antithiamine factor present in mustard seed, *Brassica juncea*. University of Calcutta.
5. Chattopadhyay, Tapas kumar. Studies on the mode of action of mycobacillin, a polypeptide antibiotic, on *Leishmania donovani*. University of Calcutta.
6. Das, Rakhahari. Role of thyroid on the synthesis of protein in submaxillary gland with special reference to peroxidase. University of Calcutta.
7. Ghoshdastidar, Pradip. Metabolic studies on *Vibrio cholera*. University of Calcutta.
8. Gur Prasad. Metabolism of flavonoids in laboratory animals. Punjab Agricultural University.
9. Mukhopadhyay, Mamdipa. Studies on the assay of serum gonadotrophin levels and action of gonadotrophin. University of Calcutta.
10. Mukhopadhyay, Ratna. Some aspects of transport phenomena and metabolism in protozoa, *Leishmania donovani*. University of Calcutta.
11. Nakhasi, Hira Lal. Effects of nutritional deficiencies on the lipid composition of the brain in rats. M. S. University of Baroda.
12. Ray, Bimal Kumar. Some biochemical and immunological studies on transplanted fibrosarcoma. University of Calcutta.
13. Rudrapal, Dipali. Studies on several lysosomal enzymes and enzymes related to L-ascorbic acid metabolism under varying nutritional conditions. University of Calcutta.

Microbiology

1. Andhari, Ravindranath Vithal. Sero-epidemiological study of chronic respiratory disease (Avian mycoplasmosis) in poultry in the State of Maharashtra. University of Poona.
2. Kachhy, Ashutosh Nilkanthrai. Metabolic changes in *Pseudomonas aeruginosa* grown on naphthalene as the carbon source. M.S. University of Baroda.

Botany

1. Amritphale, Dhip. Ecophysiological studies of a weed, *Saccharum spontaneum* (L.) with a special reference to its chemical control. Vikram University.
2. Bhattacharyya, Manju. Studies on some aspects of fungistasis and survival of rice and jute pathogens in Indian soils. University of Kalyani.
3. Chatterji, Prokash Chandra. Studies on serological behaviour of plant seeds and fungi extracts. University of Jabalpur.
4. Chowdhary, S. R. Studies on the taxonomy and nutrition of some parasitic fungi imperfecti. University of Jabalpur.
5. Deb, Kum Kum. Cytological study on certain genera of cruciferae and the effect of certain herbicides on chromosome. University of Calcutta.

6. Dhyani, Subhash Chandra. Studies on soil borne diseases of onion, *Allium cepa* (L.) with special reference to fusarium. Vikram University.

7. Ghatnekar, S. D. Palynological studies in economically angiosperms. University of Bombay.

8. Kushwah, Jagmohan Singh. Genetic analysis of important quantitative characters in groundnut, *Arachis hypogaea* (Linn.). Vikram University.

9. Maitra, Snigdha. Biochemical studies on leaf-spot disease of *Brassica oleracea* (Linn.) caused by *Alternaria brassicae* (Berk.). University of Calcutta.

10. Majumdar, Kajalkanti. An investigation on certain aspects of biology of *Polyporus gramocephalus* (Berk.) associated with a disease of *Zizyphus mauritiana* (Lam.). University of Calcutta.

11. Patil, Kuber Shamgonda. Studies on the fossil plant remains of India: Contributions to the Deccan intertrappean flora of Wardha District. Shivaji University.

12. Pramanik, Malay Kumar. Studies on some bacterial-recombinants produced by paradoxical reaction. University of Calcutta.

13. Verma, Uma. Taxonomic and nutritional studies of certain sphaeropsidales. Bhagalpur University.

Zoology

1. Balakrishnan, M. Studies on mammalian behaviour aspects of ethology of the Indian musk shrew, *Suncus murinus viridescens* (Blyth). University of Kerala.

2. Barman, Manoranjan. Studies on spider fauna of Khasi and Jaintia hills (Aranca: Arachnida). University of Gauhati.

3. Basak, Pankaj Kumar. Effect of some commonly used insecticides on the behaviour, survival, growth and reproduction of fish. University of Kalyani.

4. Chakraborty, Nani Gopal. Studies in morphology, life history and bionomics of cephaline gregarines, (Protozoa: Sporozoa) from insects. University of Kalyani.

5. Gupta, S. S. Studies on the hyoid complex of certain mega and microcheiropteran species. University of Jabalpur.

6. Gupta, Shyamali. Effect of four pathogenic bacteria on the chromosomes and mitotic index in bone marrow cells of mice and its alterations by antibiotics. University of Kalyani.

7. Jayadev Babu, S. Studies on the parasites of some common food-fishes from the Pulicat lake. University of Madras.

8. Khuda Bukhash, Anisur Rahaman. A study of chromosomes in twenty-two species of fishes. University of Kalyani.

9. Kulkarni, Kashinath Manoherrao. Environmental physiology of the *Anonuran emerita*. Marathwada University.

10. Mohammad Shamsuddin. A study of some aspects of differentiation in liver of chick embryo. University of Burdwan.

11. Muraleedharan, N. Studies on some South Indian anthocoridae (Hemiptera). University of Madras.

12. Prema, V. Studies on the integument of some isopods, University of Madras.

13. Ray, Chandra. Studies on the functional morphology of the fishes of torrential streams. University of Calcutta.

14. Sharma, Baldev. Entomological survey of Jammu region: Cicadellidae (Jassidae). University of Jammu.

15. Sivaparthi, M. Studies on autholytic enzymic un-hairing of goat skin. University of Madras.

16. Yadav, Pratap Lalsingh. Comparative histochemical studies on avian liver. M. S. University of Baroda.

Medical Sciences

1. Bhojar, Gulab Sadashiorao. Studies on prolonged release dosage forms of tolbutamide. Nagpur University.

2. Neeta Singh. Biological effects of aflatoxin B1. University of Delhi

Agriculture

1. Bhag Singh. Ecological studies on insect pollination of sunflower. Punjab Agricultural University.

2. Cilly, Vijay Kumar. Biological evaluation of mustard cake for poultry. Punjab Agricultural University.

3. Harnam Singh. Phylloplane microflora of cotton and its pathological significance. Punjab Agricultural University.

4. Jamal, Nand Singh. Response of new varieties of brinjal, *Solanum melongena* (Linn.) to various levels of nitrogen, phosphorus and farm yard manure fertilization. Punjab Agricultural University.

5. Kabeerathumma, S. Chemistry of low productive acid laterite and acid sulphate soils and their amelioration for growing rice, *Oryza sativa* (L.) Orissa University of Agriculture and Technology.

6. Kothandaraman, G. V. Studies on soil phosphorus in major soil groups of Tamil Nadu. T. N. Agricultural University.

7. Mohammed Abdul Mateen. Effect of different levels and frequency of application of propanil and different doses of nitrogen on the botanical and agronomical aspects of paddy. Bhagalpur University.

8. Patil, Vedprakash Kashirao. Growth and chemical composition of citrus rootstocks as influenced by various levels of exchangeable sodium and salinity in soil. Punjab Agricultural University.

9. Rait, Mohan Singh. Studies on morphological and biochemical characteristics in some abelmoschus species. Punjab Agricultural University.

10. Raj, M. R. Iruthaya. Studies on the influence of season, water management and nitrogen on the growth and yield of short duration rice varieties. T. N. Agricultural University.

11. Rudra, Pintu. Characteristics and genesis of some of the lateritic soils of West Bengal leading to their classification and land use planning. University of Calcutta.

12. Sandhu, Niranjan Singh. Determinants of job satisfaction among the agricultural extension officers of the Punjab. Punjab Agricultural University.

13. Vijay Kumar. Study of parent offspring relationship and combining ability in dwarf maize, *Zea mays* (L.) under different plant densities. Punjab Agricultural University.

Veterinary Science

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University News

A CHRONICLE OF HIGHER EDUCATION & RESEARCH OCTOBER 1976 Re. 1.25



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Qualifications : Essential : I or II Class Master's Degree in Clinical Psychology with at least 10 years teaching experience preferably oriented to speech and hearing handicaps
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DIRECTOR

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Opinions expressed in the articles and reviews are individual and do not necessarily reflect the policies of the Association.

Editor : ANJNI KUMAR

Barefoot Doctors

China has over the past decade trained more than 1 million 'barefoot doctors' serving the peasants who account for 80 per cent of the nation's population.

Trained to treat common ailments in the countryside, these peasant doctors combine farm work with medical duties. They are familiar with the peasants' medical complaints and know how to treat and prevent them. Apart from administering ordinary drugs, barefoot doctors use local medicinal herbs. They widely use traditional Chinese acupuncture.

Before liberation in 1949, the working people of semi-colonial, semi-feudal China were exploited and oppressed and lived in dire poverty. They had virtually no medical service. This was especially true for rural China. Some countries had poorly equipped medical institutions and private doctors, but the general picture was one of an acute shortage of medicine and doctors. A popular saying in those went : 'Just put up with it when you're not well, stay in bed if you get worse, and die if you're seriously sick.'

Since the founding of new China, the People's Government has taken a number of effective measures to carry out the principles of serving the workers, peasants and soldiers, putting prevention first, uniting doctors of the traditional and Western schools and making health work the concern of the masses. This plus the development of the national economy and the socialist transformation of agriculture has laid the basis for better medical and health service in the rural areas. Now each of the more than 2,000 counties in the country has a general hospital and anti-epidemic stations. Many counties have, in addition, maternal and childcare centres. Areas having certain problems have established special institutions for the prevention and control of particular diseases, including schistosomiasis. Most people's communes in every country have hospitals.

But China has a vast countryside and peasants live in villages scattered far and wide. Medical attention was still inadequate for them before the cultural revolution. It was not until the rapid increase in the number of 'barefoot doctors' during the cultural revolution that more and more peasants have been able to get common ailments treated promptly in their villages or even at home.

China's first barefoot doctors came into being in the Chiangchen people's commune on the outskirts of Shanghai. A mobile service team formed by urban medical workers went there in 1965 in response to Chairman Mao's call in June that year 'in medical and health work, put the stress on the rural areas' which points out the orientation of development of medical work for a country like China. This commune had only one clinic with a dozen staff members to serve a population of 28,000. So, while giving treatment, the mobile team and the commune's medical workers gave a group of young peasants

some training. These peasant-doctors gave treatment while doing farm work. Like other commune members, they were paid on the basis of work-points, and their income was the same as or slightly higher than that of other commune members with similar labour power. The peasants affectionately call them 'barefoot doctors'.

Before the cultural revolution, undue stress was put on medical service in cities at the expense of the countryside, and prevention and treatment of common diseases among the rural people and related research work were given minor attention. In 1966, the beginning of the cultural revolution gave big impetus to rural medical work, and the barefoot doctors caught nation-wide attention. The People's Government allocated more funds for medical service in the rural areas. Factories turned out more medical equipment and medicine to meet rural needs. Large numbers of urban medical workers and medical school graduates have gone to work in the countryside or joined mobile teams touring the villages. The ranks of barefoot doctors have also expanded rapidly. Today such doctors are the backbone of the rural cooperative medical service.

This service, a new system applied widely in the people's communes, is run by the peasants on a collective and mutual-aid basis. Generally, commune members pay 1 yuan per head every year to the cooperative medical fund, and the commune or production brigade makes an appropriation from its public welfare fund. All this money, plus the proceeds from growing or collecting medicinal herbs, covers the cost of treatment and medicine. The patient pays only a few fen as a registration fee for each treatment. Some communes and brigades pay out of their cooperative medical service funds part or all the medical bills for more serious cases which are transferred to country-run or bigger hospitals for treatment.

Training barefoot doctors and running the cooperative medical service well are an important means in developing China's rural health work with greater, faster, better and more economical results.

Young peasants and educated youth settling in the countryside are selected for training as barefoot doctors. Commune members make the recommendation and the brigade leadership approves it. Generally, these young people, who are credited with whole-hearted service to the people, are around 20 years old and have the educational level of a primary or junior middle school graduate.

Some barefoot doctors are trained in short term classes set up by the commune or country-run hospital. Others are trained by mobile service teams of urban medical workers. Still others go to medical schools set up for this purpose or are trained by medical school teachers in mobile service teams each with around a dozen members.

The barefoot doctors receive initial training of three to six months, and, after a period of practice, receive additional training. This is in varied forms, including training group by group and individual

training by qualified doctors. The additional training is given year after year.

Barefoot doctors are usually given training during the slack winter season. It is carried out in accordance with the principle of integrating theory with practice, and by the methods of 'less but better', intensive training, and learning while practising, with emphasis put on practice. Primary in the training is the study of Chairman Mao's instructions on medical work as well as principles and policy in this field. Technically, the training concentrates on the rudiments of medicine and the treatment and prevention of common and recurring diseases in rural areas. The barefoot doctors are required to study both therapeutics and prophylaxis, both Western and traditional Chinese medicine. In particular, they learn to use local medicinal herbs and how to collect, cultivate and prepare them. Women barefoot doctors, in addition, learn midwifery, maternal and child care, the use of contraceptives, induced miscarriage and other methods of family planning.

In their initial training, the barefoot doctors learn to treat some common diseases, the rudiments of acupuncture, prescriptions of common Western medicines and medicinal herbs, and routine skills such as injections, surgical dressings and first-aid. In additional training, they link their studies with the questions arising from their work, and the results are good. During their training, the barefoot doctors are paid as usual on the basis of work-points recorded by the production brigade and receive a stipend from the State, commune or production brigade.

The commune hospitals train most of the barefoot doctors.

The hospital of the Wangshan people's commune, Lochang county, Kwangtung province, uses the following methods to train barefoot doctors:

Runs short-term training classes at regular intervals. The subjects include new methods of acupuncture, knowledge of medicinal herbs, and the treatment and prevention of common and recurring diseases. To teach the diagnosis of abdominal pain, for instance, the teacher first deals with related fundamentals, then does clinical practice with the students, and helps them learn to treat diseases. The process is completed by a summing-up made by both teacher and students.

Sends doctors in rotation to the production brigades to pass on knowledge to barefoot doctors. When a difficult case turns up, the doctor is joined by the barefoot doctors who learn in this way.

Regularly organizes barefoot doctors to take part in the hospitals consultations on difficult cases to provide them with a better chance of learning. In some selected cases, the barefoot doctors are encouraged to relate their own ways of treatment and given the

(Contd. on page 24)

Continuing Technological Education

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With the publication of the report of the International Commission on Education sponsored by the UNESCO, certain new concepts came to prevail in the educational systems of the world. Some of these were in the area of informal education, non-formal education, part-time education, own-time education, life-long education and the like. In fact, the main theme of this report which brought about a revolutionary change in the thinking of educationists and educational administrators, all over the world, was the Learning society. The dominant pattern of education until recently, and even now to some extent, was that an individual went to school, college and university in the first 20 to 25 years of his life and then passed on to the world of work from which there was no recognisable return to education. Whatever knowledge and skills that he acquired in the formative years of his life were considered sufficient and his further education took place either on the job or in the broad social, political and economic environment in which he was placed. In other words, there were no institutional arrangements for his further education on a life-long basis. Such a system was probably well-suited to a spacious and leisurely past in which change was slow, the advancement of knowledge proceeded at a very leisurely pace and the means and methods of production, distribution, and consumption did not make any rapid changes. This was particularly true of those countries which have now come to be recognised as developing countries. With the end of the Second World War, the placid situation which I have briefly described above underwent a radical change. This change was not merely caused by the super-industrialisation of advanced countries like the U.S.A., U.K., Germany, U.S.S.R., Japan etc. But it was also dramatically hastened by the political emancipation of several countries of the world which were colonially dominated until then. The emancipation of these countries led to a revolution of rising expectations in these parts of the world. Concurrent with this phenomenon was the explosion of knowledge in the academic world. Both in the Sciences and Humanities, knowledge began to double almost every 10 years. This explosion was even more spectacular in the pure and applied sciences. While the need for continuing education was necessary and urgent in all areas of education such as general, technical and professional, it was considered to be most urgent in the sphere of Science and Technology. It was in this context that an International Seminar on the Continuing Education of Engineers was held in the year 1971 in Helsinki.

The Helsinki Seminar concluded that in all the countries of the world, the Engineer needs to receive continuously fresh information, understandings and skills throughout the span of his working life. The advances in Technology required not merely an intellectual understanding and appreciation but also successful application of such knowledge and skill, so as to advance the goals and aspirations of his country or region as the case may be. Thus the engineer has to update his knowledge continually and maintain his competence in those intellectual skills which may not be in daily use but are, at the same time, most vital for the practice of his profession. Moreover, the compulsions of modern technological development impose on the engineer the need to change his job at certain intervals and also to develop new skills on the same job in view of the obsolescence of old machinery, the input of new knowledge and the rapid pace of technological change. In fact, of the two challenges facing the modern engineer, namely, the obsolescence of old knowledge and equipment and the advancement of new knowledge and machinery, the more serious one is in the area of obsolescence. For instance, in the field of Mechanical Engineering, an entire discipline called Tribology deals with the wear and tear and obsolescence of machinery. Consequently the Plant Engineer has to improve continually his knowledge and skills so as to maximise the effectiveness of his equipment. Equally so, there is the problem of both obsolescence and advancement in the field of Electronics. Let us take for example the most important area, namely, the Computer. Even in the short period of the Computer age, there have been, so many generations of Computers succeeding one another so quickly. Indeed the obsolescence of a computer, particularly in the context of its high cost poses such a grave problem that many institutions of moderate means consider it economically more prudent to buy time on a computer or alternatively hire it for stated periods. It may well be that in future, in developing countries with their resource constraints, the very economics of the computer industry may take on a new aspect.

I have discussed above those factors which are responsible for a new look at the present system of engineering education which lie purely within the area of Science and Technology. There are, however, other factors which make the engineer seek periodical replenishment of his knowledge and skills. These lie in disciplines like Social Sciences, Management Sciences, Humanities and Languages. The modern engineer is no longer a mere builder or custodian of structures and machines. Technology has come to mean the acquisition of the skills arising out of knowledge of human psychology, modern management, labour relations, Government policy, market mechanisms and a variety of other things which do not strictly fall within the training of the engineer at the first degree level. In fact, very little representation is being given to the study of these

vital areas in the syllabus for the first engineering degree. In fact it would not be possible to fit in most of these subjects at that stage in view of the more pressing demands of the hard core subjects of Engineering and Technology. The engineer has, therefore, to come back to a School of Continuing Education in these areas which are as important to him as the knowledge of pure Technology in the middle and later years of his career. Some people may be surprised that I have mentioned even Languages in the area of the new requirements of the modern engineer. Language is such an important tool in Science and Technology that a whole new scientific and technological language has evolved demanding linguistic skills like Scientific Reporting, Editing and Translation. It is universally realised that the engineer cannot develop these skills at the first degree stage. Such language as is taught in the Engineering Colleges is of the conventional type taught in the Arts Colleges and has no slant whatsoever towards Science and Technology. The need, therefore, of a specialised course in Languages like English, German etc., with a marked slant for Science and Technology at the Post-Graduate level is equally important.

It is, therefore, evident that there is imminent need for a School of Post-Graduate Technological Education in the country. The present pattern of Post-Graduate Technological Education, however, is day-time, full-time. There are about 141 Engineering Colleges in the country and five I.I.Ts., in addition to other institutions of equal rank like the Birla Institute of Technology and Science at Pilani in Rajasthan, a similar Institute at Ranchi, the Roorkee and Jadavpur Universities which, along with the Jawaharlal Nehru Technological University, are largely devoted to the pursuit of Engineering studies. In none of these institutions is there any facility for part-time Post-Graduate Technological Education so as to suit the needs of the engineer who is employed in industry, Government, trade, research laboratories etc. Another aspect of this full-time, day time continuing technological education which has not been adequately highlighted is the heavy drop-out rate in the post-graduate courses run by many of these institutions. Experience has shown that by the end of the second year of the full-time M. Tech. course, nearly 60 to 70 percent drop out because they are able to find employment in the meanwhile. The anxiety of the engineering graduate to prefer employment to further post-graduate study is easily understandable in view of the over-capitalised nature of the engineering education as well as the five long years of full-time study which the B.E./B.Tech. course involves. Even those candidates who attend the course do so because of the monetary incentives offered by the Government of India in the shape of stipends. This largely explains the comparatively poor out-turn of post-graduates vis-a-vis graduates in Engineering. The present out-turn of engineering graduates in the country is in the neighbourhood of 14,000 per annum whereas the number of post-graduates is 1,400. This means that a bare 10 percent of the total number of

engineering graduates go to full-time post-graduate education and the remaining 90 percent go into the world of employment. These engineers who go into employment have very few chances of returning to an Institution which offers only full-time post-graduate technological education because the employers are neither anxious, nor can they afford to sponsor their employees for full-time day time post-graduate courses. It is at the same time most vital for such people employed in industry to come back to an Institution for further education in view of the rapid advances in the techniques and tools of production and also the advancement of theoretical knowledge. Hence the imperative need for a Post-Graduate Technological school in as many parts of the country as possible. In fact this appears to me an area in which the Government of India, the U.G.C. and the State Governments can profitably take the initiative.

It is in this unique context that the Executive Council of the Jawaharlal Nehru Technological University decided to set up a School of Post-Graduate Technological Education in its Hyderabad campus.

In the crucial tasks of structuring the post-graduate courses and determining their course content, a great deal of special care and thought has been taken to make them suit the needs of the industries as well as the engineers seeking further education. In each branch of engineering the specialisations have been chosen with particular reference to the latest needs of the profession or industry concerned. Most important aspect, however, of these courses is the pattern of collaboration between the University, the industry and the profession concerned. This is to redeem the normal university courses of studies in engineering from their known isolation from the industry on the one hand and the profession on the other. In the structuring of the syllabi, the choice of faculty, the method of instruction and evaluation, the professional bodies of India have been fully involved. Some of these are the Institution of Engineers of India, the National Productivity Council, the Plant Engineers Society of India, the Computer Society of India and the Indian Society of Technical Education. In the conduct of these courses the major as well as the more important role has been assigned to the professional bodies so that their knowledge, skills, experience and insights are fully fed into the courses. Another feature of these post-graduate courses is their modular structure. It is well-known that many people cannot continue in the same place for all the three years of the part-time degree course. Some may not be even interested in the Certification but only want an exposure to the course. It has, therefore, been decided to make each year of study self-sufficient so as to enable the candidate to obtain a certificate, a diploma or a full M.Tech Degree as he may desire. These are some of the unique features of the Jawaharlal Nehru Technological University's post-graduate technological education scheme.

[Courtesy : AIR, Hyderabad]

Creative Uses of Modern Testing Methods

A. Edwin Harper, Jr. and Erika S. Harper

The authors have conducted many Workshops on testing methods. The report is based on their experience gathered at different centres

Creative and often ingenious uses of modern methods of evaluation are being carried out in colleges in India today. These came out of reports at a series of Workshops sponsored by the All India Association of Christian Higher Education throughout India, in which 170 teachers from 45 different colleges participated.

Under the impetus of the AIACHE training workshops, and University Grants Commission-sponsored College Science and Humanities improvement programmes, college teachers have found a number of helpful ways to make use of short-answer and objective tests in class. Teachers report that students are very enthusiastic about these improvements in teaching and learning. Students feel they have a better grasp of material than when the only evaluation is the final external examination.

Following are some of the ways in which creative teachers are using objective tests to improve their teaching.

Effective Use of Teaching and Revision Time

Teachers find they can reduce revision and coaching time in class when frequent tests are used to identify student problems and teaching weaknesses. They can be selective in what material is to be emphasized, when short tests are used to discover what additional work students need.

for example : St. Xaviers College, Bombay, used objective tests to solve the problem of "how to cover the syllabus when college opened three months late". The Physics Department divided their courses into two sections—one which consisted of the difficult material that definitely had to be presented in class. The easier topics, then, were given to students for independent study. Objective tests were set to discover how well students had been able to handle the independent work. Time was then allotted in class to cover just those few topics from the easier material which turned out to be troublesome for the weaker students.

for example : Open University College, Cochin, reduced class time from 5 to 3½ hours and gave time for independent study which was assessed by regularly-scheduled objective tests. Saturday was testing day and each subject was tested every third week in rotation on a pre-set schedule. This allowed students to concentrate on studying those topics which they most needed, and gave them the feedback to know whether or not they really knew the material.

Rapid Assessment of Large Classes

Objective tests are being used to provide rapid assessment of large groups of students with minimum time needed for scoring. With advance planning of tests based on assessing how well the objectives of the course are being met, the actual time between administering tests and getting results to students has proven to be very short. This is then used in class to give students the feedback on how well they have learned a particular topic.

for example : American College, Madurai, has found these tests to be very popular with both students and teachers because they help the teaching process. Teachers can immediately tell if they have successfully covered a topic or not. Student misunderstandings show up clearly and quickly on these precisely-worded short answer and objective-type tests, when answers are analyzed for both right and wrong choices.

Improvement of Student Performance on University Examinations

Several colleges found that because students had three or four class tests during the year, they knew their material more thoroughly than before, and so were able to do better on university examinations at the end of the year.

Re-evaluation of University Examination Results

Class test results have been used to advise students whether or not to ask for re-evaluation of failed university examination papers.

for example : Open University College, Cochin, advises its students on the basis of their marks in frequent class tests, whether or not to pay the Rs. 100 to have their university examinations re-evaluated. About 75% of the students whom the college advised to request re-evaluation, moved to a passing grade from a failing grade. The college had the confidence, on the basis of test results, that students really had the knowledge and ability to pass the final examinations.

Uses in Language Teaching—French, Telugu, English

The French Department in Stella Maris College, Madras, finds frequent quizzes and class tests an aid to students in measuring their progress in language learning by providing feedback and analysis of mistakes.

The Telugu Department of Andhra Loyola College, Vijayawada, also uses objective tests frequently to help students clarify their understandings about analyzing literature, and their language learnings.

English Department in a number of colleges have found objective testing to be very useful in one or more of the following ways :

1. To stream students into sections according to ability. These sections then may be taught separately according to their needs and their purposes for learning English, i. e. for reading knowledge, for conversation, or for literary appreciation.

2. To provide special help for weaker students by giving objective tests to large classes, and then breaking into smaller groups.

for example : In St. Agnes College, Mangalore, the small groups of ten students have an advanced bright student with each group to review the test papers and show weaker students where they went wrong and how to improve. This enables the teacher to meet more effectively the needs of a very varied large class in English.

3. To use objective tests to measure students' understandings of poetry.

for example : St. Paul's College, Calcutta, discovered, by using both seen and unseen poetry passages in class tests, that their teaching had been "over the heads" of their students. As a result of this insight they changed their teaching methods to a simpler approach.

for example : Loreto College, Calcutta used objective tests to measure students' understandings of poetic terms, structure and content. Students preferred this kind of measurement for it was less abstract than trying to write essays on the subject.

Uses in Science Teaching

Many Science Departments are developing Question Banks and/or Item Files of essay, short-answer and objective-type questions for use in class tests and also in setting university examinations.

for example : Loyola College, Madras, Chemistry Department, under the COSIP programme, has developed an Item File of more than 3,000 items from which tests can be constructed at undergraduate and postgraduate levels. More than 2/3rds of these items have been analyzed for validity of measurement and statistical reliability.

for example : The Chemistry and Mathematics Departments of Ewing Christian College, Allahabad have used objective class tests since 1966, and are constantly improving their items.

for example : St. Xavier's College, Bombay, uses objective testing in both Physics and Chemistry as a regular part of the course for they feel that such tests are more precise, more complete, and help the students and teachers to identify problems quickly.

for example : The Zoology Departments of two colleges in Bangalore cooperate to write objective tests which are then used in both colleges, and thereby provide a larger student sampling on which to analyze the validity and reliability of their test items.

for example : Chemistry Departments at Sophia College, Bombay and American College, Madurai, cooperate with other colleges in helping to train teachers in modern testing methods as well as using these methods in their own classrooms.

Use of Instructional Objectives in Teaching and Testing

Teachers are finding that the setting of objectives to plan both teaching and testing, aids them in :

1. clarification of teaching methods needed for a particular topic or objective.
2. writing of tests that actually measure the objectives of the course.
3. improved communication with students on what the objectives of the course are and what materials they need to cover.
4. improved communication with the examiners, who then can set examinations on the particular material which tests the objectives of the course.

for example : The Y.M.C.A. College of Engineering, Faridabad, provides students, especially in their First Year, with lists of objectives of each week's teaching, so that students may understand how and what they are to study, and how it fits into the total preparation required of them. Then tests are set frequently on these objectives so that students have a continuous assessment of their progress throughout the year.

The college has found that this raises student motivation and performance to a very great extent. Students are enthusiastic about this use of objectives for teaching and of objective testing methods.

Uses of Question Banks

In several places where Universities are actively setting up Question Banks, teachers have found these to be very useful in defining the courses.

for example : Calicut University's colleges, which formerly had only the usual sketchy one-page outlines for syllabi of entire courses, now use the Question Bank as an indicator of material to be taught in class. The development of precise questions has served to fill in the gap produced by highly inadequate syllabi, so that both teachers and students, as well as examiners, have a clearer idea of what material is both to be taught and to be tested.

Increased Awareness of Different Levels of Intellectual abilities

Group discussions at workshops, and construction of tests together have made many college teachers suddenly aware of what "understanding and application of ideas, principles, and theories" really means. They have discovered that most of the present university examinations merely test memorized knowledge, and seldom test the ability to use or manipulate that knowledge. Teachers are sensing a need to adopt teaching and testing methods that involve students in the higher learning activities which require more than just memorization and writing of class notes.

Sharing of Knowledge about Modern Testing

It was encouraging to note that colleges are sharing their new-found knowledge by helping to run Workshops and Seminars, both internally and to other colleges. Notable among groups that have done this are : Andhra Loyola College, Vijayawada

(Contd. on page 24)

Conversion of Marks into Grades : A Comparative Study

S. C. GUPTA

The suggestion that we should have grade system instead of present marking system is based on a number of important considerations. Firstly, under the present examination system, a student securing 59.5% marks gets a second division whereas a student securing 60% marks or more gets a first division. This would be a valid approach if our system of marking was perfectly valid foolproof. Secondly, it is well known that in some subjects like Mathematics the highest mark awarded may be 100 while the lowest may be 0 or close to 0. In many other subjects this may not happen. For example in a language paper the highest

mark may be 60 and the lowest 20, the actual range of marks being 40 when the marks of different subjects are added, the subject in which a wide range of mark is used has more effect on the total result. If, for example, the marks of English and Mathematics papers are added, Mathematics will receive about two and half time the weight of English. In fact, we shall be evaluating the performance of students on his Mathematics rather than on his overall capacity and achievement. This kind of obtaining aggregate marks of the students will lead to a great deal of irrationality in final marking. The raw mark of the students in each subject must therefore be classified into grades and marks are important only for determining the rank order of the student.

Transforming marks into a smaller number of grades, each grade representing a range of marks would give us a more dependable differentiation among the students. A grading scale does not attempt to make such fine distinctions as envisaged by 101 point marking and therefore it is less misleading. It groups students into a small number of categories representing a range of marks and we can be more confident that the range within which a student is placed gives an accurate indication of his standing. While it is desirable and in fact preferable to adopt 'direct grading', it is felt by many teachers and examiners that direct grading is possible only after suitable training in grading answer papers. In the transition period, of course, teachers and examiners would continue to award marks and the university will provide a conversion table from marks to grades. In this study three different methods of conversion are given, studied and compared.

Conversion of marks into grades for 5 Postgraduate subjects and 6 Undergraduate subjects were studied by all the three methods given below and comparison is made for all the three methods.

TABLE I

S. No.	Subject	Year	Student Nos.	Mean	S.D.
<i>Undergraduate</i>					
1.	Psychology	1973	98	51.85	9.23
		1974	66	48.12	11.60
		1975	91	49.91	9.47
2.	Physics	1973	101	26.24	7.48
		1974	100	21.02	9.60
		1975	109	20.25	7.66
3.	Chemistry	1973	82	24.80	4.78
		1974	101	20.46	8.08
		1975	108	20.44	6.68
4.	Mathematics	1973	97	34.35	14.62
		1974	114	29.38	16.85
		1975	109	38.04	14.71
5.	Botany	1973	106	25.66	5.24
		1974	100	27.53	6.76
		1975	86	27.73	7.42
6.	Zoology	1973	106	25.38	6.11
		1974	110	24.27	5.15
		1975	86	21.41	6.95
<i>Postgraduate</i>					
1.	History	1973	123	51.74	7.66
		1974	88	52.68	8.63
		1975	117	46.94	9.99
2.	Mathematics	1973	60	59.83	20.81
		1974	38	61.74	20.42
		1975	41	56.39	22.72
3.	Economics	1973	48	22.40	10.10
		1974	45	19.02	9.89
		1975	43	24.70	6.94
4.	Commerce	1973	45	21.69	4.95
		1974	46	20.41	6.41
		1975	82	27.96	7.36
5.	Psychology	1973	50	24.90	3.52
		1974	49	27.24	4.90
		1975	65	24.89	5.12

Z score has been calculated for each subject in a year based on mean and standard deviation for the year 1973, 74 and 75.

Method I

The percentage of normal curve is used to award each grade and percentage used is

3%	
7%	as suggested by Hill,
22%	Barrow, Dandekar
36%	and modified by
22%	Prof. Natarajan
7%	
3%	

Method II (UGC 7 Point Scale)

This method of converting marks into grades is suggested by UGC. Award O (outstanding) to the top mark and F to the fail mark and distribute the remaining marks between O and F on the basis of equal intervals.

For example, suppose the pass mark is 36 and the highest mark ever awarded in the subject is 77, the distribution of grades will be as under :

71-77	O
64-70	A
57-63	B
50-56	C
43-49	D
36-42	E
0-35	F

Similar tables may be constructed for each subject or paper and this will immediately provide a rational basis for combining grades in different subjects.

Method III

This method is based on Z score (derived score based on Mean and Standard Deviation). Z score tells in simple terms the difference between a stated group's mean and any specified raw score value

$$\text{Symbolically } Z = \frac{x - \bar{x}}{S.D.}$$

where x = A specified raw score

\bar{x} = Mean of score

S = Standard deviation

Grades based on Z score are

1.5 and above	O
1 to 1.5	A
0.5 to 1.0	B
-0.5 to 0.5	C
-1.0 to -0.5	D
-1.5 to -1.0	E
less than -1.5	F

A few examination results of last three years obtained from a university recently at the Graduate and Postgraduate levels, have been analysed and some particulars of analysis are given below.

(Table I given at page 9)

In order to explain how we have converted marks into grades we take only one subject say Post-graduate Mathematics and work out the percentage of candidates belonging to each category by each one of the method.

Table II has been worked out on the basis of Method I

% of candidates	Range of Marks			Average Range of Marks	% of candidates
	1973	1974	1975		
3	92 & above	95 & above	99 & above	95 & above	3%
7	87-91	92-94	90-98	90-94	6%
22	72-86	75-91	71-89	73-89	20%
36	51-71	49-74	48-70	49-72	42%
22	28-50	40-48	31-47	33-48	19%
7	18-27	31-39	12-30	20-32	6%
3	Below 18	Below 31	Below 12	Below 20	4%

Method I suggests that for Postgraduate Mathematics students the percentage should be 3%, 6%, 20%, 42%, 19%, 6%, 4% to award grades.

Table III has been worked out on the basis of Method II

Range of Marks 1973	% of candidates	Range of Marks 1974	% of candidates	Range of Marks 1975	% of candidates	Average range of Marks	% of candidates
83-94	16%	84-95	18%	87-99	12%	85 & above	15%
71-82	17%	72-83	23%	74-86	7%	72-84	4%
59-70	18%	60-71	26%	61-73	22%	60-71	22%
47-58	26%	48-59	11%	48-60	27%	48-59	20%
35-46	8%	36-47	26%	35-47	15%	35-47	16%
23-34	7%	24-35	3%	22-34	7%	23-34	6%
Below 23	8%	Below 24	3%	Below 22	10%	Below 23	7%

Method II suggests that for Postgraduate Mathematics students the percentage should be 15, 4, 22, 20, 16, 6, 7 to award grades.

Table IV: Has been worked out on the basis of Z Score Method III

Range of Marks 1973	% of candidates	Range of Marks 1974	% of candidates	Range of Marks 1975	% of candidates	Average range of Marks	% of candidates
above 91	3%	above 92	5%	above 95	7%	above 93	4%
82-91	15%	84-92	13%	85-95	7%	84-93	12%
72-81	15%	75-83	14%	70-84	20%	72-83	13%
51-71	38%	52-74	34%	48-69	34%	50-71	39%
42-50	12%	43-51	16%	36-47	15%	40-49	14%
31-41	7%	36-42	13%	31-35	7%	33-39	6%
Below 31	10%	Below 36	5%	Below 31	10%	Below 33	12%

Method III suggests the percentage 4, 12, 13, 39, 14, 6, 12 to award grades for Postgraduate Mathematics students.

Table V

Summary of comparison of different methods based on 7 point scale Grading System

Subject	Percentage of candidates belonging to category					
	Good & Above	Average	Good & Above	Average	Good & Above	Average
	Modified Normal (Ours)		U. G. C.		Based on Z score	
Postgraduate						
1. Psychology	30	39	78	18	30	39
2. History	34	34	78	13	34	36
3. Economics	36	32	57	14	36	32
4. Mathematics	29	42	51	20	29	39
5. Commerce	40	37	48	38	36	32
Undergraduate						
1. Psychology	37	34	68	19	37	34
2. Zoology	34	37	52	28	33	37
3. Mathematics	33	35	43	18	33	35
4. Botany	40	30	63	22	33	36
5. Physics	28	35	45	35	31	37
6. Chemistry	36	29	56	25	31	40

A comparison of different methods based on 7 point scale grading system is also worked out and shown in Table V. (given below)

Table V showing the percentage of candidates belonging to various categories i. e. total percentage of candidates who scored Good, Very good and Outstanding grades and also those who obtained average grade is compared by all the three methods. It is found that there is very good agreement between the Method I and Method III and Method II indicates over-grading.

Summary of Recommendations

All universities adopting 7 point scale grading system should either adopt Method I or Method III. Method III is ideal if the university is making use of computers for examination results and analysis. In the absence of this, perhaps Method I (which compares very favourably with Method III) should be adopted. Clearly Method II (UGC) over grades and this will create confusion and many problems in the years to come.

[The author is Statistician in the Research Cell of AIU.]

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EDITOR

Convocations

Universities to promote regional development

Professor Nurul Hasan, Union Minister for Education and Social Welfare, while delivering the fifth convocation of Himachal Pradesh University said that the reform of education must begin at the secondary stage itself where a new pattern of 10+2 should be adopted and the higher secondary stage should be vocationalised. The reforms in higher education will have to be accompanied by appropriate changes in the national wage and recruitment policies. For this a rapid growth of the economy was needed so that the products of educational system could be easily absorbed.

Prof. Hasan said that the university has a special responsibility to promote the development of the region in which it is situated. In this context the responsibility of Himachal Pradesh University to develop the basic and fundamental knowledge that is needed for the solution of the urgent problems of the Himalayan region becomes all the more important. The Geological Survey of India has already given higher priority to the survey of the Himalayan region. The university should try to disseminate this knowledge not only amongst its students through formal education but among all the people of the State. The only way to disseminate knowledge was to develop formal and non-formal programmes of teaching so that every individual is able to absorb all the knowledge that he needed or can meaningfully digest.

Referring to the controversy between applied and fundamental research, the Minister said that to over-emphasise or to separate the two in watertight compartments can only be self-defeating. The best results in higher education are obtained only if teaching is blended with research.

Teaching without research tends to be pedestrian and defeats its own purpose while research without teaching is wasteful.

The increasing cost of higher education and growing unemployment among students has led everyone to ask whether large and continuously rising investment in the university system is really justified and whether there is proper return thereon. While knowledge has increased in different disciplines and inter-disciplinary fields, it has also created many new challenges in organisation of suitable courses and evolution of appropriate teaching methods. It was therefore necessary to relate enrolment in higher education to the employment opportunities available. Sub-standard graduates were at present being produced by a system lacking in manpower planning.

Menon addresses IT Bombay convocation

Prof. M.G.K. Menon while addressing the fourteenth convocation of the Indian Institute of Technology, Bombay, said that the various problems which the country faced could be solved through development in science and technology and not by crying a halt to the growth in these fields. The fear in the minds of the people at the growth of science and technology was due to its role in increasing mankind's destructive powers to the extent where existing arsenals were fully capable of wiping out human society from the face of the earth which was clearly a gross misuse of the capabilities of human knowledge.

The population explosion, one of the big problems faced by human society, was a direct result of the positive use of science

and technology in the area of medical sciences while the rapid depletion of natural resources was a direct consequence of science and technology being used for a senseless pandering to consumerism. These factors combined with the increase in pollution, the degradation of the environment has led many people to ask whether the advances of science and technology were indeed desirable. Professor Menon called upon the engineers and scientists to work not just for comfortable security but for an opportunity to play a dynamic role in solving the very large problems relating to the development of science and technology on a meaningful basis.

University Autonomy

Mr. A.L. Dias, Governor of West Bengal, while addressing the eleventh convocation of North Bengal University, said that the State Government was not encroaching on the autonomy of the universities. He reminded the critics that autonomy conferred not only rights but also imposed some duties and responsibilities. He felt that some measure of superintendence and control in financial matters was very necessary.

The Chancellor was happy to note the progress made by the university during the last few years in restoring normalcy in its functioning. He was confident that the university would be a catalyst for change and a pace-setter for the cultural, social and economic development of this region. The new departments of sociology, social anthropology and the proposed centres for life science studies and Himalayan studies would help the university to do some relevant study to the needs of the region. He was happy that the malpractices in examinations have been curbed and examination reforms are being introduced by the university.

Seminar on Examination Reforms

(Report from Lucknow Correspondent)

A three-day seminar on reforms in the system of examination was held at Lucknow University from September 2 to 4, 1976. The seminar was well attended. The representatives of the University Grants Commission, the Association of Indian Universities, the N.C.E.R.T. besides Professors of Education from Bombay, Baroda, Chandigarh, Tirupati, Calcutta, Delhi were also invited.

The seminar was organised in consequence of the decision taken earlier at the meeting of the U.P. Vice-Chancellors with the Chancellor. Dr. M. Chenna Reddy, Governor of Uttar Pradesh while inaugurating the seminar pleaded with the academics to come forth with bold and practical suggestions for reforms in the present system of examination.

There was yet another minor group which did not share the two extreme viewpoints. The members of this group felt that even in the present conditions prevailing in the universities and affiliated colleges of Uttar Pradesh such steps could be taken up as would inspire confidence among examinees and make examination results more reliable and valid.

It is ironical that whenever the problem of examination reform is raised, a *de novo* effort is made, that is, the recommendations of previous commissions and committees regarding examination reform are totally ignored and rarely any reference is made to them. A typical example is that of the Question Bank. It is well known that the Association of Indian Universities has been engaged in creating a question bank. Indeed

tion. As we all know, the common pattern of examination can be worked out to bring about uniformity in rules pertaining to the conduct of examinations in all the universities of Uttar Pradesh.

Under the dynamic leadership of the Chancellor, Dr. M. Chenna Reddy, the Uttar Pradesh hopes to move forward and introduce such changes in the pattern of examinations as are beneficial for the student community as well as do not lead to wastage of human energy and money.

Rapid changes in Madras

Madras University Syndicate has approved the scheme under which student in rural colleges can study subjects related to the rural environment as ancillaries in their BA, BSc and BCom courses. To begin with, these new subjects will be introduced in eight colleges affiliated to the university which are located in the rural areas. The university has decided to change the present urban biased curriculum and give it a rural orientation at the suggestion of the University Grants Commission. Rural industrialisation, agricultural marketing, farm management and local self government would be introduced as ancillary subjects for the degree course in Economics and Rural Development, land reform and panchayat raj district development administration for BA Politics. Rural business accounting, rural banking and agricultural taxation would be added at the B. Com courses.

The new ancillaries in BSc Botany would be agricultural entomology, plant breeding and plant pathology and those in BSc Zoology would be fisheries science, dairy science, poultry science and pest management. Food production and preservation, waste management and new energy sources, social welfare and functional literacy would be introduced in the BSc Home Science course. For this the Boards of Studies in different courses have drawn up a detailed curricula for the new subjects. The teaching staff would be drawn for these subjects from

CAMPUS NEWS

There were two trends noticeable during the discussion in the seminar. The radical group wanted to overhaul the entire examination system and replace it by internal evaluation. The other group which is traditional was not in favour of any change, raised certain objections to the kind of changes envisaged in the present examination system. The conservatives said that there was no money to have such an infrastructure as would enable effective internal evaluation. This group also pointed out the problems pertaining to the teacher-taught ratio. In most of the degree colleges teacher-taught ratio is not as it should be. Hence the students did not receive much attention. Under such circumstances any reform in examination system was not possible.

It has been able to organise a bank to a very great extent. This was pointed out by Dr. Amrik Singh. But most of the participants in the seminar were apathetic towards it and pointed out a number of difficulties. It is like digging a well each time when one is thirsty. The same is the case with examination reform.

Many practical and useful suggestions have been given by the Universities Education Commission (1948-49) and the Kot-hari Commission (1964-66). The University Grants Commission has also published a brochure, 'Examination Reforms—A Plan of Action.' Yet in the seminar new proposals were made under the cover that each university has different set of rules pertaining to examinations. It was argued that each university therefore should devise its own pattern of examina-

the Tamil Nadu Agricultural University and the Agriculture and Co-operation departments of the State Government.

The university has also decided to introduce a new system of conducting public viva for doctoral candidates. Ph.D. theses henceforth will be placed in the library and the candidates would be asked to defend before the supervisor and the external examiner. Others interested in the subject could also attend the viva session and put questions to the candidates. Now onwards all the research theses would be valued by examiners within the country and will not be sent to the foreign examiners. In view of the wide range of expertise available within the country the university regulations have already been amended to provide for the appointment of Indian examiners.

Question banks had been set up in two B.A. and four B.Sc. subjects and they were being circulated among the colleges. Model question papers for four undergraduate and nine post-graduate courses had also been prepared.

The university also decided to rename its Centre of Advanced Studies in Philosophy as Dr. Radhakrishnan Institute of Advanced Studies in Philosophy.

From isolation to integration

Madurai University in response to the appeal issued by the Union Finance Minister for mobilising the academic expertise of the university for formulating a concrete programme of action, has taken a significant step which will be watched with interest all over the country. Vadapalanji, the adjoining village to the university campus, has been formally adopted by the university. Preliminary survey of the place has been made and the local people have been met and their problems discussed. An economic-socio study of the village has been undertaken. This study has revealed the rank poverty of the people, the woeful lack of essen-

tial facilities like adequate water supply, drainage and sanitation, medical care, fuel and energy, nutritive food etc. Based on a study of the above survey a plan for an integrated rural development has been worked out by the faculty of the departments of Science and Economics in collaboration with the State Director of Rural Development, the Collector of Madurai, the District Development Commissioner, the Manager of the State Bank of India, the Director of Youth Welfare and the Principal of NSS Unit of Govt. Medical College, Madurai.

The plan presently suggested is for meeting certain immediate needs of the village and thereby giving an initial boost to its economy. Dr. M.S. Swaminathan, Director-General, ICAR, has rightly suggested, 'What is needed now is the growth of employment policies from an overall strategy of resource utilisation designed to convert sunlight, soil, water, mineral, plant, animal and other sources into wealth meaningful to the people'. The modus operandi of the university is therefore oriented to the planned recluster-ing of jobs, services and amenities in a meaningful way in keeping with the agro-ecological potential and socio-economic needs of Vadapalanji village. While using the tools of science and technology available in the university, the administrative support of the Collectorate and the Directorate of Rural Development, the loans generously extended by the State Bank of India and the helpful guidance of the Khadi and Village Industries Board, the pace of development has been maintained.

The plan of integrated rural development adopted by the university is but a beginning. Detailed ecological and socio-economic surveys will be undertaken in the course of time to evolve a more comprehensive programme with all the ingredients of an interdisciplinary, inter-departmental and inter-institutional approach to be implemented in a phased manner. For the first time the university has ventured to step

out of its campus and march into a poverty-stricken village carrying with it a meaningful, purposeful and goal-directed plan of action involving the entire community in it with a pledge to work for its regeneration. It has thereby virtually ended a period of alienation and isolation and begun an epoch of association and integration as between itself and the people of a rural community. The task ahead will be geared to the exploitation of human ability to create natural patterns of local initiative and participation in the programme of reconstruction. This approach with in-built elements of variety and flexibility will form the core of the operational strategy and will be constantly kept in perspective.

Computerisation without mistake

The University of Madras introduced computerisation of examination results from this year. The process had a signal success. The results of as many as 1,65,209 candidates appearing in the PUC, BA and BSc and BCom. examinations were compiled in the record time without any mistake. The hall tickets could be issued to the Centre for distribution to candidates ten days in advance. The statistical data regarding the number of candidates appearing for various subjects could also be established accurately and the dummy number system was accurately implemented for the PUC examination. Besides it helped in maintaining the secrecy of the examination. There was a net saving of Rs. 2.5 lakhs in respect of employment of temporary staff, printing and stationery.

Next year the university would be able to publish the results not later than May 24 instead of June 10 this year. The cost of the computer working would be further brought down from Rs. 7.5 lakhs to Rs. 4.5 lakhs. The programming of the examination procedure and the check would be further

~~streamlined~~ In view of the confidence gained from this year's experience the university is considering the extension of computerisation to MA, MSc and MCom degree examinations for implementing the new grading system effective from December 1976 examinations.

Survey of N.S.S. camps

During May-July, this year, 786 NSS camps were held. Over forty thousand students and teachers participated. The participants included a large number of non-student youths also. This year a distinct increase in the number of women students participating in these camps was noticed.

Several universities preferred to have the N.S.S. camps in Dussehra/winter recess. Jammu & Kashmir, Kerala, Sikkim, Tripura, Aurnachal Pradesh Andaman Nicobar, Dadar & Nagar Haveli, Goa Daman & Diu, Lakshadweep, Mizoram, Pondicherry could not organise summer camps. It is expected that a much larger enrolment of N.S.S. students in special camping programmes will take place during the coming months.

The main theme this year was 'Youth for Rural Reconstruction'. The emphasis on different aspects of rural development however differed from State to State, from university to university and even from college to college. In Uttar Pradesh, for example, the main emphasis, under instructions from the State Government, was on family planning, tree plantation and digging irrigation canal. In Punjab the main activity was on tree plantation and creation of durable assets in villages. In Orissa the main emphasis was on implementation of twenty point economic programme. In Maharashtra priority was given to digging and construction of wells for providing drinking water as well as for irrigation, construction of houses for the poor on sites allotted recently by the Government. In some places the students have

been assigned the new owners of land (those who were recently allotted agricultural land) in ploughing the land in sowing, and helped them in obtaining assistance from various government and other local agencies. The agricultural universities took up programmes like soil health care, rodent control, pest management, popularisation of high yielding crop varieties, animal health care and other related programmes. In most of the camps some activities were common, for example, mass immunisation, health care programme, sanitation including village cleanliness, disinfecting wells and ponds, literacy drive, non-formal education, organising youth clubs and mahila samitis, training in craft and vocations, cleaning and levelling of playgrounds and campus beautification, programmes of land welfare, popularising Gobar Gas Plant etc.

Some of the colleges held their camps on the sites of historical monuments. The activities in these camps comprised mainly cleaning and maintenance of ancient monuments under the guidance and supervision of the State Government Departments of Archaeology. In these camps talks and discussions were arranged on the significance of the monuments and historical events associated with them. The Directorate of Archaeology, Karnataka, took a special interest in involving N.S.S. in their programme of preservation and maintenance of historical monuments.

IITs scheme for reserved seats

The Indian Institutes of Technology have prepared a scheme through which candidates belonging to the scheduled castes and scheduled tribes can get admission to the IITs against their reserved quota of seats without having to appear in the joint entrance examinations. A candidate belonging to the reserved category may seek admission either through the joint entrance

examination or through direct admission. Those taking the entrance examination are required to secure only two-third of the marks secured by the general candidates in the aggregate. They need not pass in all the subjects whereas other candidates are required to pass in all the subjects to qualify for admission.

For direct admissions, applications would be invited from scheduled castes and scheduled tribes candidates who have passed their qualifying examinations in the current year and have obtained not less than sixty per cent marks. The IITs have further evolved a new scheme to enable the weak students to come up with the requirements of their courses of study. They are allowed to take less than the average load in the first semester. The shortfall in the number of subjects they are required to pass in the two semesters of the first-year is made up by letting them take these subjects during the summer vacations when special arrangements are made for teaching these subjects.

Plans for raising academic standards

Patna University would soon institute M.Phil course in its faculties to raise the academic standard of research work. It would also set up a Research Board in the Faculty of Science for the promotion of qualitative research work. The recent changes in the recruitment system of teachers in universities has resulted in a big rush for enrolment for Ph.D. courses. The university authorities are examining the situation. Research facilities will be increased in all the teaching departments accordingly.

For the improvement of standard of teaching in both the undergraduate and postgraduate departments, the Academic Planning Board of the University is giving more emphasis on tutorial methods of instructions in all the faculties. The number of students

for the pass course is being restricted to twelve in a group and for the honours and post-graduate tutorials it would be between six to ten. The tutorial periods could also be increased from one to three per paper per week. Every teacher incharge of the tutorial classes will maintain a daily record of work done by every student in his tutorial class. In every paper the student would be required to produce at least ten written exercises before he is allowed to come for the university examination.

Messing arrangements to be streamlined

The Government of Uttar Pradesh in a circular to all the Vice-Chancellors of the universities and Principals of degree colleges has asked them to instruct the wardens of hostels to re-organise their messing arrangements so that they start functioning in a regulated manner. Such arrangements can be supervised by students themselves or can be run by contractors or cooperatives. The example of cooperative running of kitchens by students in Kolhapur district has been cited in the circular and recommended for implementation. The Union Ministry of Civil Supplies would be able to provide assistance to such college cooperatives.

The State Government has also allocated Rupees one crore for meeting complete expenses of books for setting up book banks in government and aided colleges. Four sets of textbooks would be supplied for all classes. The problems arising out of the implementation of these schemes would be discussed further in the meeting of the Vice-Chancellors called by the Chancellor during next month.

Education behind bars

Prisoners in various jails in the Malwa region, enrolled for the correspondence courses of Punjabi University, have given a good account of themselves. The university contacted the jail authorities before finalising the admission

and special contact classes have been arranged for them.

Mrs. I.K. Sandhu, Vice-chancellor of the University, has a plan to encourage education for the handicapped people. The deaf and dumb persons were not so far admitted to the BA course but this restriction has been removed from the current academic session. As a matter of fact two seats in each of the courses have been reserved for the handicapped students. The vocational courses like forensic science and applied physics and postgraduate diploma in maintenance and servicing of electronic instruments, business management, material management, stenography and commercial practice have become very popular with the students since inception.

ICMR's biomedical cell

The Indian Council of Medical Research will soon establish a separate cell at its headquarters in Delhi to encourage research in biomedical engineering. A group of experts from Indian Institutes of Technology, universities, medical colleges and hospitals, electronic commission, national laboratories and medical engineering industries was appointed to go over this question. The recommendations of this group have been accepted.

Recently bio-medical engineering research applications have assumed great importance in the field of pollution control and industrial hygiene. They are likely to help in the rehabilitation of handicaps. In view of the

importance of this activity steps are being taken to encourage the indigenous development of bio-materials like polymer, etc.

Uniform three-year degree courses

To ensure uniformity of standards in the various regions of the State, the Maharashtra Government has decided to have uniform three-year degree courses in all the universities after ten years of secondary and two years of higher secondary education.

The Academic Council of Bombay University recently decided to introduce integrated courses of three years' duration leading to the degree of BA, BSc and BCom under the 10+2+3 pattern of education from the academic year commencing June, 1977.

The integrated course will be applicable to both students passing out from the Higher Secondary School Certificate Examination to be conducted by the Maharashtra State Board of Secondary Education or any examination recognised as its equivalent.

Meanwhile, the Academic Council has also decided to introduce for the first time a grading system of evaluation (in addition to the present numerical marking system) on a seven-point scale at the examinations leading to the degrees of MA, MSc and the MCom. This will come into effect from M.A. Part I, M.Sc. Part I and M.Com. Part I exams to be held in the year 1978.

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Mode of VC's appointment changed

The Government of West Bengal has promulgated an ordinance which has curtailed the powers of Calcutta University Syndicate in regard to the appointment of the Vice-Chancellor. In accordance with the Calcutta University Act, 1966, Vice-Chancellor upto now was appointed by the Chancellor in consultation with the Minister for Education from among three persons recommended by the Syndicate of whom not more than one used to be member of the Syndicate. The new ordinance has taken away the powers of the Syndicate in submitting the list of three names to the Chancellor. Instead, a five-member committee will be appointed by the Chancellor for this purpose. The Vice-Chancellor of Calcutta University will now be nominated by the Chancellor in consultation with the Minister for Education from a panel of not less than three persons recommended by the committee constituted for this purpose in the following manner.

The five-member committee as provided in the ordinance will consist of (i) two persons to be nominated by the present Syndicate of Calcutta University; (ii) one shall be a nominee of the Academic Council; (iii) one shall be a nominee of the Chairman of the University Grants Commission; (iv) one shall be a nominee of the Chancellor who shall act as the Chairman of the Committee.

Scientists to get computerised information

The Indian National Scientific Documentation Centre in New Delhi will soon provide to scientists and technologists with a constant stream of up-to-date information to match their specific research needs. The latest information would be gathered from all over the world and processed with the help of an ultra modern computer. This is due to the successful operation

of the experimental project undertaken by the INSDOC for developing computer based 'selective dissemination of scientific information'.

The project is being sponsored by the Unesco. The Department of Science and Technology, Government of India, is also supporting the project under the scheme for the establishment of a national information system for science and technology. The Indian Institute of Technology, Madras, is also helping the project through its IBM model 155 system computer which has the necessary capability for handling this type of work. The computer based SDI is designed to provide each user with a regular flow of up-to-date information in the form of a list of matched references drawn from a stockpile of machine readable data bases covering major international abstracting and indexing service. An agreement with the Chemical Abstract Services has been entered into by the INSDOC for this purpose.

Under this project the service has been offered to 120 scientists including a few from the neighbouring countries like Nepal and Sri Lanka. The success of this project would mark the beginning of a large-scale application of computers in the information work in the country.

Madras IIT collaboration with Industries

The Indian Institute of Technology, Madras, has been directly associated with industries and other national projects for mutual advantages and has set up a centre for policy studies which will be formally inaugurated shortly. Dr. K.A.V. Pandalai, Director of the Institute, has finalised the detailed plan of action. The centre will soon undertake a scientific study of data in all fields where science and technology make an impact and also attempt at futuristic projections. These projections are expected to give immense help to the policy makers every-

where. The centre will also periodically publish its findings on socio-economic subjects ranging from fuel and food to employment and population.

The industrial consultancy centre of the IIT, first of its kind in a higher technological institution in the country set up with a view to providing access to the facilities in the IIT and follow up research and other requirements of user industries has been a great success. There has been an expansion of 85% during the last three years. Its turnover which was 19 lakhs in 1973-74 rose to over Rs. 42 lakhs in 1974-75 and is expected to reach Rs. 60 lakhs in 1975-76. In the consultancy service those responsible for training of engineers, scientists and technologists have viewed things so far in an artificial atmosphere. But in the IIT, the faculty members have intimate contacts and close collaboration and inter-action with the industrial environment and technological problems of the industry. The centre also helps in achieving the objective of training technical manpower required for the national programme for industrial and economic growth. So far 2674 consultancy projects including 219 large sponsored projects have been completed. The consultancy service has a wide range from anything like planning and production to design and development. They include measurements calibration, testing and certification of standards, fabrication, fault rectification and servicing, investigations, reports and recommendations.

Delhi liberalises study leave rules

The Professors of Delhi University will now be entitled to a year's sabbatical leave at the end of six years of continuous service in the Professor's grade. But they would be entitled to sabbatical leave twice in their entire period of service. Besides, they will be entitled to extra-ordinary leave twice during their tenure as Professor.

The university has also revised the study leave rules for Readers and Lecturers in the University departments and colleges. After a continuous service of at least two years, a teacher will be entitled to study leave for two years, one year with full basic pay and the second year with half pay. Formerly, a teacher could get only a year's study leave with full basic pay or two years with half pay. The new rules will also allow a teacher to combine his study leave with earned leave or half pay leave provided that he takes this at the commencement of study leave.

In special cases the university will allow a teacher leave of absence up to three years for purposes of completing research projects. All the provisions have been made to help teachers to complete their Ph.D. or take up other research work. Certain amount of flexibility has been introduced in the leave rules and in some cases the university will allow a teacher to draw his full salary with allowances during the period of study leave. The university may also grant study leave to teachers before completion of the minimum two years service.

Crop pest Atlas under preparation

The Punjabi University is preparing an atlas of insect crop pests which could serve as a guide for tackling the pest problem on an all India basis. Under the project, distributional zones will be mapped out with seasonal abundance, migration, varietal resistance, parasitism and predation with respect to the abundance of the pests. The atlas would serve as a basis for the structuring of a national policy for pest control.

Uptil now the problem of pest control has not been taken on a national basis. The farmers are generally wedded to the traditional methods of cultivation. On account of their small and scattered holdings they are unable to devise effective control measures. For example if a farmer sprays

his fields with insecticides and his neighbours fail to do so it won't give the desired result. The pest would migrate into the unsprayed fields and infect back the sprayed fields after dilution of the potency of the insecticides. Thus the progressive farmer fails in his efforts to control the pests.

The proposed atlas would help in the work of pest suppression at national level with the active involvement of the Central and State Governments. This would ultimately help in augmenting the agricultural production in the country.

Andragogy courses

The Task Force of the University Grants Commission headed by Dr. M.S. Mehta of the Centre of Continuing Education, Udaipur has visualised the need for different levels of courses such as postgraduates study, first degree course, diploma, certificate and short-term courses in andragogy. Eventually students will be preparing for research in this discipline depending upon the resources of the organisations conducting the courses. The Task Force felt that at the initial stage the teaching programme should be considered a field of study rather than a discipline. The proposed course would be a departure from the conventional courses as it would integrate theory and practice. Part of course would be devoted to practical work. While recognising that continuing education would be a distinct field of study the Task Force wants the course to be inter-disciplinary in nature. The universities wanting to start the subject have been asked to place it in the department of social sciences or of arts.

The methodology adopted for the course would be learning through problem and community oriented techniques and there would be considerable flexibility in its teaching programmes. It has been stressed that a short-term course for the potential adult educators must be conducted before the course for adult

students are started. Initially the number of teacher trainees should be confined to twenty. They should be motivated and the minimum qualification for the teachers should be a Master's degree with at least a second class.

The Task Force, recognising the importance of the short-term course meant for the teachers, has stressed that the teachers should themselves be prepared before the course is begun. The objective of the course should be kept in mind while making the selection. The University Grants Commission has been requested not to permit opening of the adult education courses in universities which do not have competent staff, minimum library facilities and teaching equipment. The Task Force would be meeting again in early December for finalising the courses that would be started from January next.

Institute for Oceanography

The Andhra University will soon have a Marine Geo-Physical Institute in collaboration with Lemont Geological Observatory, USA. The proposed institute is expected to cost Rs. 2 crores. It will conduct research in all aspects of surface conditions under the sea including mineral and oil exploration and structural delienation. Sea-bed profile also will be recorded. The institute would be a teaching and research organisation and the Oil and Natural Gas Commission and the Geological Survey of India will actively collaborate in conducting the geo-physical study which has not so far been done. The United Nations is also expected to assist in setting up of the institute which will be the first of its kind in India. The university would be importing equipment worth Rs. 10 crores from abroad.

No age bar for Osmania examinees

Osmania University has, with immediate effect, withdrawn restrictions as regards age and production of jurisdiction for its

external candidates. The university conducts external examination for private candidates for BA, BCom and MA, MCom and MSc (Mathematics). The question papers shall be in English but the candidates have been permitted to write answers in any of the following languages i.e. English, Telugu, Urdu, Hindi and Marathi.

Srinagar library conference

The Indian Library Association would be holding the twenty-third All-India Library Conference in Srinagar from October 6 to 11, 1976. The conference will be presided over by Shri L.K. Jha, Governor of Jammu and Kashmir and will be inaugurated by Seikh Mohammed Abdullah, State Chief Minister. The theme of the conference is "Fifteen-year perspective plan for development of various types of libraries in India". About five hundred delegates from the libraries all over India are expected to attend the conference.

NSS activities in Ludhiana

The NSS wing of Punjab Agricultural University has adopted four villages in Ludhiana district for their overall development under the programme of rural uplift. About two hundred and fifty NSS volunteers including one hundred and thirteen girls participated in a two-day camp organised in these villages. The data about the family size of villages has been collected. The village women have been asked to keep their houses and kitchen clean. The girls have also campaigned against social evils like dowry. The engineering students put up a mobile van for effecting repairs to the farm machinery and they also helped in completing a kilometre long link road by doing earth work with the help of villagers. The veterinary NSS volunteers organised a camp where they told the villagers about the various prevailing cattle diseases.

Farm university tackles soil abnormality

The Tamil Nadu Agricultural University has made a soil survey

of the State. It has been found that about three lakhs hectares of crop lands suffer from soil abnormality. The saline and alkaline nature of the soil affects the normal yield even under good monsoon and with the application of adequate fertiliser. Experiments carried out by the university have revealed the possibility of making this soil normal profitably through the application of gypsum to replace the exchangeable sodium and improvement of the soil structure with the aid of green manure coupled with effective improvement in drainage.

Research Cell for teaching History

A six-day workshop on the teaching of History through correspondence was conducted at the Punjabi University, Patiala. The University Grants Commission sponsored workshop for history teachers drawn from Institutes of Correspondence Courses in India was well attended. It has recommended the setting up a permanent research cell for continuous research on the development of methodology for the teaching of History through correspondence, radio, television and other media.

The other recommendations of the workshop included the making of correspondence courses job-oriented and relevant to the needs of society through a wide choice of options, association of correspondence course teachers with active teaching in the university departments; a special provision of in-service training of teachers in the methods of teaching through correspondence; and institution of postgraduate diploma courses for this purpose in different subjects.

Master Plan of Delhi Varsity

Delhi University will be co-operating with the National Physical Laboratory, the Council of Scientific and Industrial Research and other universities in the city on research projects to pool academic resources. This has been visualised in '15-year

perspective planning scheme' for the university prepared by the working group appointed by the Executive Council of the University.

The committee has set up three sub-committees to discuss various aspects of academic planning, campus development and college development especially in view of the new 10+2+3 academic system now being introduced. The academic planning sub-committee will discuss the introduction of new courses, improvement of research qualities inter-disciplinary areas of research, the flexibility of the syllabi and the introduction of national fellowships and lectureships to enhance teaching work.

The campus planning committee and the college planning committee will discuss physical development of the colleges keeping in mind the overall needs of the university. It will also discuss faculty improvement at the college level, cooperative teaching schemes as well as the physical facilities available for the students. A questionnaire has been sent to all the colleges requesting Principals to enumerate the existing facilities both academic and physical and planned development projects for the next ten years so that a comprehensive perspective development plan could be prepared.

Space technology courses at Madurai

The Academic Council of Madurai University recently decided to take steps to start courses in space science and technology. A proposal to this effect has already been made by the Vice-Chancellor Shri S.V. Chittibabu to the Tamil Nadu Government. He pointed out that the courses would be quite expensive as it involved construction of a new building.

The correspondence course in the university has become very popular and the number of the candidates for the course had gone up from 18,000 two years ago to over 30,000 now.

Grants for Konkan Varsity

The Indian Council for Agricultural Research has sanctioned a sum of Rs. one crore to the Konkan Krishi Vidyapeeth for undertaking extension and research work.

The Vidyapeeth has initiated a number of ambitious schemes to boost agricultural and horticultural produce. The Vidyapeeth in the beginning was concentrating to spend funds on rural development by introducing modern methods of agriculture to the farmers. About 25 agricultural graduates have started servicing centres in surrounding villages to provide guidance to the agriculturists. Under another scheme agricultural and extension officers as well as gramsevakhs have been trained for short periods to provide guidance to the farmers at different levels. A new variety of mango fruit 'kesar' is being developed which will bear fruits much earlier than the famous 'Alfanzo'. The Vidyapeeth is also conducting experiments to introduce a new variety of 'nagali' crop which require only 135 days to yield good crop. The university is also working out the syllabus for two-year diploma course in fisheries. An agricultural polytechnic will also be started at Kosbad district shortly by the University.

Jabalpur seminar

A two-day seminar on 150 years of Hindi journalism was organised by the Journalism Department of Jabalpur University. The seminar stressed the need for opening journalism departments in all the universities of the country. A number of prominent journalists from different parts of the country participated in the seminar which was presided over by Shri A. K. Jain, Editor, Nav Bharat Times. The seminar has recommended that the journalism training camps should also be organised at regional, state and national levels from time to time. It also recommended that All-India News-

papers Museum be set up in which not only old newspapers and magazine should be preserved but contemporary press clippings for reference should also be maintained.

Andhra University collaboration with Govt.

A technical and research cell has been constituted in Andhra University to assist the State Government in the preparation for a perspective plan on some aspects of development for the sixth plan. The University has constituted, with Prof. K. Sivayya, Head of the Commerce Department as convener, a committee to study the economic aspects of marine development in the east zone. The different aspects of transportation, storage facilities and marketing arrangements connected with the development of fisheries in the Bay of Bengal would also be examined. The other members of the cell are Prof. G. Parthasarathi, Head of Applied Economic and Cooperation Department and Prof. K. Ramakrishna Rao, Head of the Psychology Department. The cell will also have two representatives of Andhra Pradesh Government. The Government has allocated a sum of Rs. 50,000 for this project. The report is expected to be ready within six months.

AMU education centre

The University Grants Commission has approved the proposal of Aligarh Muslim University to set up a Centre of Continuing Education. During the fifth plan period the university will receive a recurring assistance of Rs.60,000 per year for the staff for three years. Non-recurring assistance will also be provided for the purchase of equipments like tape recorders and record players.

4-Yr. B.Tech. course in Madras

The Indian Institute of Technology, Madras, will introduce from the next academic session a new four-year B.Tech degree

course to fit in with the new 10+2 pattern of education. Dr. R. T. Chandy, Chairman, Board of Governors, made this announcement at the thirteenth convocation held recently. With the coming in of the new pattern of education, the institute would be offering for some time both the present five-year B.Tech degree and a new four-year degree programme for those who had completed twelve years of study. It is also proposed to introduce unit system from 1977-78 in order to give flexibility in the choice of study depending upon the personal attitude of the students. The process would allow brilliant students to complete the course in a shorter duration within the stipulated number of years.

A new postgraduate programme in television engineering is also proposed to be started under the new Indo-German agreement. Television equipments and spares worth rupees fifty lakhs would be made available by the Federal Republic of Germany. The Government of France has also agreed to extend assistance to the institute to promote collaboration in aeronautical engineering.

Tokyo's interest in Chola inscriptions

The Department of South Asian History at the University of Tokyo would shortly publish a book which will include all proper names and titles found in the 3000-odd published Chola inscriptions. A statistical analysis of the Chola inscriptions including the computer now under way as a project work with a grant from Mitsubishi Foundation has yielded interesting results which are useful in understanding many of the revenue terms and their chronological and topographical distribution in the Chola territory. Prof. Noboru Karashima of Tokyo University is on a visit to South India. He gave all these details while delivering a lecture in the Department of Ancient History and Archaeology of the Madras

University. The concordance would cover details like village name, lineage and titles which would help in understanding many problems.

Nehru Literacy Award

Dr. T. A. Koshy, Project Director, Council of Social Development, has been awarded the Nehru Literacy Award for 1976. Dr. Koshy is also the recipient of Welthy Fisher Literacy Award. He has been working in the field of adult education and adult literacy for over 25 years.

Dr. Koshy's main contribution is in the evolution and development of the concept of the farmer's functional literacy. He has been Secretary of the Indian Adult Education Association for almost two decades. He was Director of Literacy House, Lucknow from 1957-62 and was Head of the Directorate of Adult Education, Union Ministry of Education from 1963-72.

Student members of Academic Council

Two student representatives have been elected this year to the Academic Council of Delhi University under the new statutes for a term of one year. They are: Mr. Arjun Kumar Sikri, a final year law student of the Campus Law Centre and Mr. Chandan Sourav Mitra, final year MA. (History) student of St. Stephen's College.

UP Vice-Chancellors to meet in November

Dr. M. Chenna Reddy, Governor of Uttar Pradesh, has called a conference of Vice-Chancellors of all the State universities in Lucknow on November 2 and 3, 1976. The conference will be preceded by a meeting of Principals of degree colleges and managers of these institutions. The conference will discuss amongst various matters utilisation of developmental grants of the universities and colleges, procedure of appointment of teachers, progress of establishment of book

banks and provision of hostel mess facilities and other amenities to students. The recommendations on examination reforms made at a seminar organised by the Lucknow University are also likely to come up for consideration.

Mysore plans new system

The Mysore University would soon introduce the credit system at the undergraduate level from this academic year. The system will benefit the students particularly from rural areas who suffer from certain handicaps. Mr. D. V. Urs, Vice-Chancellor of the University explained that the students from villages had to compete with their unequal urban partners who enjoyed better academic background and other facilities. Under the new system students could complete the degree course even in lesser time by scoring the required credit points. This process is likely to liberalise the process of education to considerable extent.

ALIGARH MUSLIM UNIVERSITY

Advertisement No. 14/76-77

Applications, on the prescribed form, are invited for the following posts :-

1. Professor of Geology. Scale Rs 1500-60-1800-100-2000-125/2-2500 plus allowances.

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- (i) A first or high second class Master's degree in Geology of an Indian University or an equivalent foreign qualification ;
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Desirable:

Special knowledge of Medieval/ Modern Hindi Literature.

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Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is 30th October 1976. Incomplete applications and those received late may not be considered.

Higher start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

CORRIGENDUM

In this Office Advertisement No. 13/76-77, inviting applications for Lecturers under Sub-item No. (5)—read "One post of Lecturer with specialisation in

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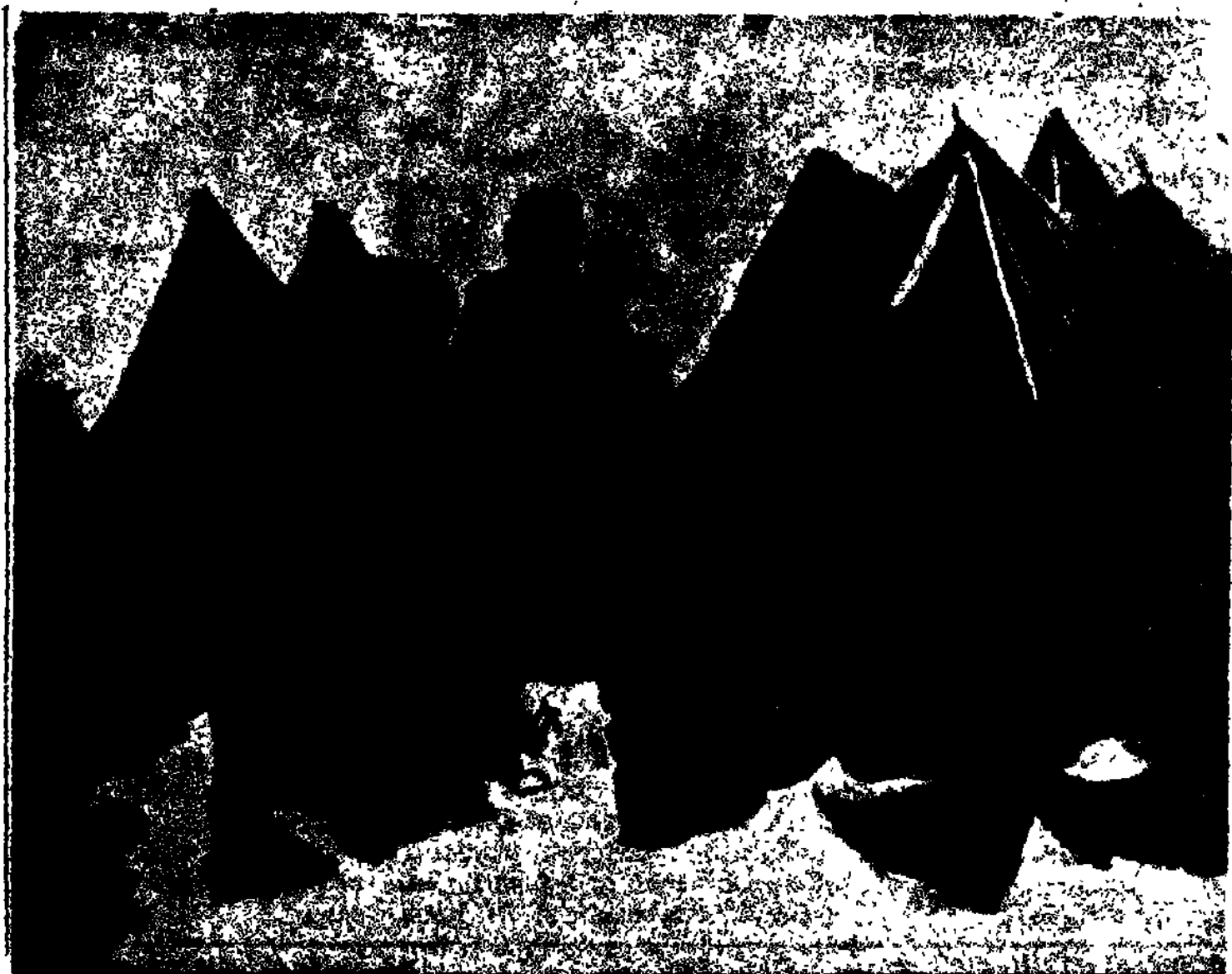
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Applications are invited from candidates, preferably below the age of 30 years and who have obtained Master's Degree in 1st Division, or High Second Division, for award of U.G.C. Junior Research fellowships each of the value of Rs. 400/- p.m. with a contingent grant of Rs. 1500/- per annum.

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Sd/-
K. K. Gupta
REGISTRAR



The leader of High Altitude Trekking Expedition discussing the plans with other members of his team.

High Altitude Trekking Expedition

Gujarat University organised an Inter-University High Altitude Trekking Expedition during summer vacations this year. The contingent of 23 students reached the height of 17600 ft. on the Ladakhi range over Biaskund in the Western Himalayan range. They met with an avalanche but escaped unhurt. The students earlier had their training in ice and snow techniques at their base camp set up at Biaskund at the height of 13000 ft. The members had to face many thrilling situations at different stages. A team of five members had to drag up to 700 ft. to face an easy way. Six sherpas who accompanied the team were very helpful and co-operative.

The members of the team had a good time in climbing a wall formation at an inclination of 85°

without resting on the way. Six experienced members of the team climbed the difficult Tentu pass after a gruelling six hours climb on the rocky ridges. The expedition provided invaluable experience in mountaineering and also an exercise in character building and training in facing adverse situations with the team spirit.

The team was accorded a heroic welcome in Manali and Delhi. Mr. H.C. Sarin, President of the IMF congratulated the members of the team for their singular success. He promised to provide better facilities, equipment and scholarships in the universities of Gujrat. The members of the team came from Saurashtra, Gujarat Vidyapith, Sardar Patel and M.S. University of Baroda. The team was led by Mr. Kanak Dave of Gujarat University.

Sports Science courses

The Calcutta University has decided to start from next academic session a postgraduate one year degree/certificate course in sport science and medicine. In the first semester, Anatomy, Physiology including Biochemistry, Physical Education, Physiology, Classification of Sports would be covered. In the second semester, Physiology in Sports and Athletics, Clinical Sports Medicine, Physiology in training and coaching of athletes, and Biostatistics would be taught. There would be separate practical for each of the semesters. Those having MBBS or MA/MSc in Physical Education or Master's degree in Physiology, Biochemistry, Psychology and Applied Psychology would be eligible to enrol for the course.

The Academic Council of the University also approved the starting of M.Phil course in Economics from next January.

Osmania to start correspondence courses

The University Grants Commission has approved the proposal of Osmania University to start correspondence courses for BA and BCom degrees in accordance with the guidelines provided to the universities. The university would obtain the concurrence of the State Government to provide assistance over and above that of UGC for maintaining the facilities when the period of UGC assistance comes to an end. The Commission has further advised that Osmania should coordinate its work with the other two universities in the State, viz., Andhra University and the Sri Venkateswara University. A coordination committee of all the three universities would be set up to help in designing common instructional material for all the universities in the State.

A. P. farm university adopts Sikkim

Mr. B. P. Dahal Minister for Food and Animal Husbandary, Sikkim Govt., paid a visit to the Andhra Pradesh Agricultural University recently. During his discussion with Dr. C. Krishna Rao, Vice-Chancellor, various plans for improving the agricultural development of the State were discussed. It is likely that the university may adopt the State for providing various inputs required for all-round farm development. The agricultural scientists working in the university are likely to visit Sikkim to participate in research and other farm projects. The university would also provide training facilities to students coming from Sikkim State. The State Government has prepared a Rs. 1.84 crore Master Plan for dairy development. It is expected that country's biggest pig rearing farm may be established there in the near future.

INSA awards

The Indian National Science Academy instituted, in 1974, the award of "Science Academy Medals for young Scientists", to give recognition to the scientific achievements of young scientists below the age of 30, in any branch of science and technology within the purview of the Academy.

The Council of the Indian National Science Academy this year has selected 12 scientists for the award of "Science Academy Medals for Young Scientists". With the medal a cash prize of Rs. 1500/- is also awarded. Recipients may be invited to deliver a lecture on the subject of their research work for which a sum up to Rs. 500/- is provided to meet the expenditure on travel and preparation of the material for the lecture. In addition, the recipient is also given a Research Grant of Rs. 5000/- which he may utilise for the advancement of his research work. The research grant is made by the Kothari Scientific and Research Institute, Calcutta.

The presentation of the medals to the recipients will be made at the time of the Anniversary General Meeting of the Academy to be held during the 64th Session of the Indian Science Congress at Bhubaneswar in January 1977.

The awardees of the medals are : 1. Dr. Srikumar Banerjee, Scientific Officer, Metallurgy Division, Bhabha Atomic Research Centre, Bombay for work on solid state phase transformations; 2. Dr. (Mrs.) Julie Banerji, Department of Pure Chemistry, University College of Science, Calcutta, for work on synthesis of heterocyclic compound and Alkaloids; 3. Dr. A.R. Bhattacharya, Lecturer in Geology Lucknow University, for extensive studies on Rock deformation and carbonate sedimentation in Almora District and Himalayas; 4. Dr. S.G. Dani, Fellow, School of Mathematics, Tata Institute of Fundamental Research, Bombay, for original

researches of high order on Ergodic theory; 5. Dr. Shamim Haider, Lecturer, Department of Zoology, Banaras Hindu University, for extensive studies on regenerating property of the neurosecretory axons and tracts; 6. Dr. R. V. Halyburton, Geologist, Oil India Ltd., Assam, for original work on the structure and tectonics of precambrian areas of Central and Southern Rajasthan; 7. Dr. (Miss) Priti Mohapatra, Lecturer, Post-Graduate Department of Mathematics, Utkal University, for her contributions to the analytical solution of Magneto hydrodynamics equations; 8. Dr. V. M. Pawar, Professor of Entomology, Marathwada Agricultural University, for original work on insect physiology and virology; 9. Dr. S.S.S.V. Prasad, Post-doctoral Fellow, M.D. Anderson Hospital & Tumour Institute, The University of Texas, U.S.A., for his work on isolation and purification of proteinaceous crystal of *Bacillus thuringiensis*; 10. Dr. Abhijit Sen, Fellow, Physical Research Laboratory, Navrangpura, Ahmedabad, for his work on Theoretical Plasma Physics, with applications to thermonuclear fusion, etc; 11. Shri A. Surolia, Neurochemistry Laboratory, Christian Medical College Hospital, Vellore, for his studies on the interaction of lectins and glycoproteins. 12. Dr. V.V.S. Tyagi, Assistant Professor of Botany, Punjab Agricultural University, for his work on the formation and differentiation of heterocysts in blue-green algae.

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Barefoot Doctors

(Contd. from Page 4)

necessary advice on the spot.

Organizes barefoot doctors to learn from each other, and exchange and sum up experience. For instance, a barefoot doctor achieved excellent results in treating 'boil', a disease common in summer in the mountain area, by a method he had evolved of combining traditional Chinese medicine including acupuncture with Western medicine. The commune hospital called a meeting to publicize his method so that all other barefoot doctors in the commune readily learned it.

Organizes barefoot doctors to learn from the masses, and collect, study and systematize effective tested folk prescriptions. Over 300 such prescriptions have been collected in two years, with over eighty used in treating diseases.

Thanks to the rising skill of the barefoot doctors, fewer patients are now referred to the commune hospital.

Medical colleges have a large student enrolment of barefoot doctors with experience. Peasants recommend their best barefoot doctors to the colleges for specialized training. The graduates

return to their villages to continue serving the peasants.

[Reprinted by permission of Unesco from PROSPECTS: Quarterly review of education, Vol. V : 4. (c) Unesco 1975]

Creative Uses of Modern Testing Methods

(Contd. from Page 8)

Sophia College, Bombay; St. Xaviers College, Ahmedabad; Stella Maris College, Madras; St. Joseph's College for Women, Waltair; American College, Madurai, Patna Women's College, Patna; St. Joseph's College, Bangalore; St. Xaviers College, Bombay; Loyola College, Madras; Ewing Christian College, Allahabad; Mar Thoma College, Tiruvalla; and many others. Staff members in these colleges are becoming experts in the construction of modern tests and are now able to help others in understanding the methods and concepts involved.

Colleges wanting help with the training of staff in modern methods may now look to all of these colleges for leadership and help in the construction, adaptation and use of objective testing methods to improve college teaching.

[The authors are working in the Bureau of Educational Research, Ewing Christian College, Allahabad]

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Successful and better life demands new ideas, new processes and effective methods. Behind these new and better things there is one power and one force, that is creative urge. All of us have abundance of ideas and urges, it is a matter of putting these into practice. In this book several stories and examples are given to stimulate the interest of the reader in creativity. However, the first step towards creative approach is to expose ones personality and examine facts with different frames of reference of thinking, acquire flexibility of attitudes, and unfreeze the personality. This is the process of unfolding discussed in the book.

ABOUT THE AUTHOR

Anand Khare 'Saleem' is at present 'Industrial Consultant' to Young Industries. His current work is on 'Industrialisation in developing countries'. Dr. ANAND KHARE 'Saleem' was formerly Lecturer at West Ham College, London ; Reader, Indian Institute of Science, Bangalore, Chairman, Policy Committee, 'UTMC', Bangalore. His publications are on Engineering Science, Management and Policy decisions and Educational topics. His lectures to young graduates carry the message of self employment and creative work.

Anand was born in Central India. Having completed his graduate engineering degree with honours in India, he obtained a degree of Master of Science from the University of Wales, U.K. and Doctor of Philosophy from University of London.

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CLASSIFIED ADVERTISEMENTS

SAMBALPUR UNIVERSITY

Jyoti Vihar : Burla 768017

No. 31053/TDS

Dated. 11-9-76

Advertisement

In continuation of this office advertisement No. 27796/TDS dated 4.8.76, applications in the prescribed forms are invited for the following post in the University P. G. Department as stated below.

Reader—Library Science—1
Scales of pay—Reader—Rs. 700-50-1250/-

(The pay scale is likely to be revised)

Qualification

- (i) First or high Second class Master's Degree in Library Science.
- (ii) Doctorate Degree or published work of equivalent standard.
- (iii) Independent published research work.
- (iv) Teaching experience for atleast 8 years out of which 5 years must be in teaching P. G/Hons classes in a college or University.
- (v) Capacity to guide research work.

The posts carry usual dearness allowance as would be sanctioned by the University from time to time.

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 10/- (Rupees ten) only. Candidates intending to receive forms by post are required to send (a) Crossed Postal Order of Rs. 10/- payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla, (b) a Self Addressed envelope (23 cm x 10 cm) with postage stamps worth Rs. 2.85p affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY" superscribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of applications in the office of the University at Jyoti Vihar, Burla, Sambalpur (Orissa) is 12.10.76. The candidates will be required to appear for an interview before a Selection Committee at their own expenses.

All communications should be addressed to the Registrar by designation only.

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G.P. Gera
REGISTRAR

CENTRAL INSTITUTE OF EDUCATION

33-CHHATRA MARG ; DELHI-7

September 11, 1976

Applications are invited for the post of Lecturers in English, Commerce, Economics and Zoology in the pay scale of Rs. 700-1600 in the Central Institute of Education on the prescribed form along with copies of the certificates supporting the facts mentioned in the application.

The Selected candidates will be admissible for usual allowances like D.A., C.C.A., H.R.A. as are admissible under the Delhi University rules in force from time to time.

The prescribed application form can be had from the office of the Central Institute of Education, either personally or by sending a self addressed envelope with postage stamps worth Rs. 2.40.

Selected candidates will have to produce the original documents relating to their age, qualifications, experience, etc. before joining the appointment.

Application accompanied by attested copies of the Degrees and other certificates and published research articles etc. should reach the undersigned not later than 15th October, 1976.

Relaxation if any of the qualifications may be made in exceptional cases on the recommendations of the Selection Committee.

Qualifications :

Consistently good academic record with a First or High Second Class (B+) Master's degree in Education and in the concerned subject or an equivalent degree of a foreign University in the subject.

Desirable :

1. A doctor's Degree or evidence of research work of equivalent standard in the subject concerned.
2. Teaching Experience of Degree/Post-Graduate classes.

Candidates called for interview from outside Delhi will be paid contribution towards Travelling Expenses equivalent to 1½ Second Class Rail Fare as per rule.

Sd/-
PRINCIPAL

MINERALOGY, PETROLOGY & ECONOMIC GEOLOGY TABLES

by Prof. N.L. Sharma and Shri Y.K. Agrawal; pp. 248; Tables 64; Price Rs. 18/-

The third revised, enlarged edition of this invaluable reference book for all those interested in Earth Sciences has just been published as the first Golden Jubilee Publication by the Indian School of Mines with a subsidy under the Indo-American Text-Book programme operated by the National Book Trust of India.

Copies are available from the Registrar, Indian School of Mines, Dhanbad-826004 on pre-payment by cash or D/D of Rs. 18/- per copy plus packing & forwarding charges of Rs. 4/- per copy.

INDIAN INSTITUTE OF TECHNOLOGY

Kharagpur

Advertisement No. R/16/76

Applications are invited for the undermentioned posts at the Indian Institute of Technology, Kharagpur, West Bengal

POSTS

I ASSISTANT WORKSHOP SUPER-INTENDENT

Scale of pay : Rs. 700-40-900-EB-40-1100-50-1300/- plus usual D.A. at admissible rates.

Qualifications & Experience : Essential :

- (1) Degree in Mechanical Engineering or equivalent.
- (2) About one year's practical training in industry and four year's experience in a Workshop in a responsible capacity
- (3) Should be able to guide practical training of students and apprentices.
- (4) Should be able to take charge of Mechanical Workshops of the Institute.
- (5) Must be conversant with maintenance and erection of laboratories and plants.
- (6) Should have knowledge in regard to purchase, storage and issue of engineering materials, equipment and accessories.

Desirable : Teaching experience.

H. SENIOR PHYSICAL TRAINING INSTRUCTOR :

Scale of pay : Rs. 700-40-900-EB-40-1100-50-1300/- plus usual D.A. at admissible rates.

Age : Preferably between 30 and 45 years.

Qualifications & Experience :
Essential :

- (1) A Degree from a recognised University.
- (2) A Diploma or Degree in Physical Education from a recognised University.
- (3) 10-12 years practical experience in handling both sports and cultural activities for students at university level—preferably in residential University.
- (4) Organisational and administrative ability with working knowledge in accounts and preparation and maintenance of courts and playgrounds.

III. ASSISTANT ENGINEER (CIVIL)

Scale of pay : Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200/- plus usual D.A. at admissible rates.

Qualifications & Experience :
Essential :

Graduate in Civil Engineering or equivalent with a minimum total experience of 3 years of which at least one year should have been spent as a S.D.O. Experience of at least 2 years of construction maintenance and design experience.

IV. ASSISTANT LIBRARIAN

Scale of pay : Rs. 700-40-900-EB-40-1100-50-1300/- plus usual D.A. at admissible rates.

Qualifications & Experience :
Essential :

First or second class B.A./B.Sc./B.Com. Degree plus a first or second class M.Lib.Sc. Degree.

First or second class M.A./M.Sc./M.Com. Degree and a first or second class B.Lib.Sc. or a Diploma in Library Science.

V. STORES OFFICER :

Scale of pay : Rs. 700-40-900-EB-40-1100-50-1300 - plus usual D.A. at admissible rates.

Qualifications & Experience :
Essential :

- (1) Degree in Mechanical and/or Electrical Engineering.
- (2) Adequate experience in purchasing engineering stores, some knowledge of store-keeping and management and workshop experience.

Application form may be had from the Registrar of the Institute on request along with an unstamped self-addressed envelope of size 23 cm. x 10 cm. Application fee (non-refundable) of Rs. 7.50 for general candidates and Rs. 1.87 for Scheduled Caste/Scheduled Tribe Candidates payable by means of crossed Indian Postal Order addressed to the Registrar, Indian Institute of Technology, Kharagpur at Kharagpur-2 Post office, Dist. Midnapore (West Bengal).

Last date for submission of application is the 30th October, 1976.

INDIAN INSTITUTE OF TECHNOLOGY

Kharagpur

Advertisement No. R/17/76

Applications on plain paper stating Name, Father's Name, Present and

Permanent Address, Qualifications and Experience in detail, Nationality etc. are invited for the following posts at the Indian Institute of Technology, Kharagpur (West Bengal) :

Posts :

- (a) Senior Research (Civil Engineering Deptt.) Assistant
- (b) Senior Research (Radar & Comm. Centre) Assistant —post temporary during the continuance of the Centre (Electrical Engineering Deptt.)
- (c) Senior Research (School of Research in X-ray and Structure of Matter) Assistant

Scale of pay : Rs. 550-25-750-EB-30-900/- Plus D.A. as admissible.

Age : Preferably between 25 and 35 years.

Qualifications & Experience :

(a) for Civil Engineering Department :

Essential : Degree or Diploma in Electronics

Desirable : Experience of servicing electronic measuring instruments.

(b) for Radar & Communication Engineering Centre :

First class Bachelor's degree in Electronics & Communication Engineering or equivalent/Electrical Engineering with specialisation in Electronics & Communication Engineering/M.Sc. Physics with specialisation in Electronics.

Desirable : One year research experience/M.Tech. Degree.

(c) for Electrical Engineering Department :

1. Post-graduate degree in Electrical/Electronics Engineering or
2. Degree in Electronics Engineering/Electrical Engineering with two years' experience or
3. Diploma in Electrical Engineering/Electronics Engineering with 5 years' experience in the relevant line

(d) for School of Research in X-rays and Structure of Matter.

Essential : (1) Bright academic career with preferably a first class M.Sc. degree with specialisation in X-ray and crystallography. (2) Two years' experience in a reputed X-ray laboratory in operating, handling and maintaining X-ray apparatus and cameras of all types and/or electron microscope including electron diffraction attachments. (3) Good knowledge of dark room practice, high vacuum techniques and electronic computers.

Desirable : (1) Ability to carry out routine type of X-ray analysis and conduct special precision type of experiments under guidance. (2) Ability to design and fabricate high vacuum and electronic appliances. (3) Workshop experience (4) Ability to demonstrate and explain experiments

Job requirements :

(a) for Civil Engineering Department :

1. Should be able to service electronic measuring instruments

used in Civil Engineering Department such as (i) Strain gauge bridges, (ii) Signal conditioner, (iii) Bridge balancing unit and amplifier, (iv) Multi-channel pen recorders, (v) Vibration measuring equipment. (vi) Acoustic strain measuring instruments, (vii) Sonic and Ultrasonic Concrete Testers.

2. Should be able to design and fabricate simple electronic devices.

(c) for Electrical Engineering Department :

To help conduct hardware oriented research investigations in the field of Power Electronics/Electrical Drives. To assist in the establishment and maintenance of the laboratories dealing with research and teaching.

(d) for School of Research in X-rays and Structure of Matter :

(1) Running, maintaining and repairing apparatus instructed by the Chairman/Head of the School or any other person authorised by him (2) Building up of new instruments and setting up of new experiments as required by the Head or his nominee. (3) Carrying out routine measurements, calculations, calibrations etc, as required.

Applications accompanied with an application fee (non-refundable) of Rs. 3.00 (Rs. 0.75 for SC/ST candidates) payable by means of crossed Indian Postal Order to the Indian Institute of Technology, Kharagpur at Kharagpur-2 Post Office should reach the Registrar, I.I.T., Kharagpur by the 30th October, 1976.

SAMBALPUR UNIVERSITY

JYOTI VIHAR, BURLA

Advertisement

No. 31749/TDS.

Dated 21-9-76

Applications in the prescribed forms are invited for the following posts in the P. G. Department of Sambalpur University as stated below.

Lecturer—Two in Physics. Scale of Pay Rs.400-40-800-50-950/- (The pay scale is likely to be revised)

- Qualification :—**(i) At least a 1st or High Second Class Master Degree in the subjects.
(ii) Teaching/Research experience for at least two years.
(iii) Candidates with Ph. D. Degree will be preferred.

The posts carry usual dearness allowance as would be sanctioned by the University from time to time.

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs.10/- (Rupees ten) only. Candidates intending to receive forms by post are required to send (a) Crossed Postal Order of Rs.10/- payable

to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla (b) a self addressed envelope (23 cm x 10 cm) with postage stamps worth Rs.2.85 affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY" super-scribed on it. Money order/Cheque will not be entertained.

The last date of receipt of applications in the office of the University at Jyoti Vihar, Burla, Sambalpur (Orissa) is 30.10.76. The candidates will be required to appear for an interview before a Selection Committee at their own expenses.

All communications should be addressed to the Registrar by designation only.

Sd/-
(G. P. Gera)
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, Kharagpur

Advertisement No. R/18/76

Applications are invited for appointment to various academic positions in the following departments of the Indian Institute of Technology, Kharagpur (West Bengal):

Posts and scale of Pay :

1. Professor : Rs 1500-60-1800-100-2000-125/2-2500/- plus D.A. at admissible rates.
2. Assistant Professor : Rs 1200-50 1300-60-1900/- plus D.A. at admissible rates.
3. Lecturer : Rs 700-40-1100-50-1600/- plus D.A. at admissible rates.

Age :

1. Professor Preferably below 50 years
2. Assistant Professor Preferably between 30 and 45 years
3. Lecturer : Preferably between 25 and 38 years

Qualifications :

1. PROFESSOR

Essential : First class Master's Degree/Doctorate Degree in appropriate field with a minimum of 10 years' experience in teaching at post-graduate level in an institution of University standard and research or development work; should have specialised knowledge in one or more specified fields.

Desirable : (a) Research publications in reputed journals. (b) Experience in guiding research. (c) Ability to organise and develop laboratories in the specialised fields.

2. ASSISTANT PROFESSOR :

Essential : First class Master's Degree/Doctorate Degree in appro-

priate field with a minimum of 5 years' experience in teaching and/or research in an institution of University standard; should have specialised knowledge in one or more specified fields.

Desirable : (a) Publications in reputed journals. (b) Experience of carrying out independent research. (c) Corporate membership of a recognised professional institution.

3. LECTURER :

Essential : First class Master's Degree or second class Master's degree with Doctorate Degree in the appropriate branch of study with specialisation in one or more specified subjects with research or industrial experience of not less than 2 years.

N.B.: Relaxation of qualifications prescribed for the posts may be made by the appointing authority in cases of posts for the departments of Naval Architecture and Architecture & Regional Planning.

1. Department of Physics & Meteorology: Professor, Lecturer

Field of specialisation :

PROFESSOR :

- (a) Experimental or Theoretical Solid State Physics preferably in Electric, Magnetic, Dielectric or Mechanical Properties of Solids.
- (b) Crystal Physics preferably in Lattice Imperfections.
- (c) Semi-conductor Physics preferably in structure and transport properties of thin films
- (d) Cosmic Rays and Nuclear Physics preferably in instrumentation.
- (e) Atomospheric Physics preferably in propagation of electromagnetic waves.

LECTURER :

- (a) Nuclear Physics (b) Solid State Physics (c) X-rays & Structures of Matter.

II. Department of Chemical Engineering Professor, Assistant Professor (including Mineral Engineering), Lecturer. Field of specialisation:

PROFESSOR :

- (a) Chemical Engineering Science
- (b) Petroleum Refining Engineering and Petrochemicals.

ASSISTANT PROFESSOR :

- (a) Transfer Operations (b) Chemical Process Technology (c) Petroleum Refining Engineering & Petrochemicals (d) Biochemical Engineering (e) Chemical Reaction Engineering.

ASSISTANT PROFESSOR IN MINERAL ENGINEERING :

Operation of Mineral Processing Equipment of Plant.

LECTURER :

- (a) Transfer Operation (b) Mechanical Operation (c) Mineral Engineering (d) Petroleum Refining Engineering (e) Process Dynamics and Controls.

III. Industrial Management Centre PROFESSOR ASSISTANT, PROFESSOR

Field of Specialisation :

PROFESSOR :

- (a) Labour Management and Personal Relation (b) Financial Management (c) Marketing Management (d) Industrial Engineering and Operation Research.

NB : Candidates with Engineering background will be preferred.

ASSISTANT PROFESSOR :

- (a) Financial Management (b) Marketing Management (c) Industrial Engineering and Operation Research.

IV. Department of Mechanical Engineering :

PROFESSOR, ASSISTANT

PROFESSOR.

Field of Specialisation :

PROFESSOR & ASSISTANT PROFESSOR.

- (a) Mechanics of Solids/Machine Dynamics (b) Fluid Mechanics/Hydraulic Machines (c) Design Engineering (d) Material Transportation Engineering/Vehicle Engineering (e) Production Engineering / Foundry Engineering/Machine Tool Engineering (f) Thermal Engineering—Steam/Nuclear Power, I.C. Engines, Gas Turbines, Refrigeration & Air Conditioning. Heat Transfer (g) Energy Conversions (h) Mechanical Systems Engineering-Measurements and Control/Fluidics.

V. Department of Mathematics :

PROFESSOR :

Field of Specialisation :

Any branch of Mathematics/Applied Mathematics.

VI. Department of Chemistry :

PROFESSOR, ASSISTANT

PROFESSOR, LECTURER.

Field of specialisation :

PROFESSORS :

Applied/Inorganic/ Organic/ Physical Chemistry.

ASSISTANT PROFESSOR :

Inorganic Chemistry.

LECTURER : Any branch of Chemistry.

VII. Department of Naval Architecture:

PROFESSOR, ASSISTANT

PROFESSOR, LECTURER.

Field of specialisation :

One or more specified areas in Naval Architecture and Ship Building.

VIII. Department of Humanities & Social Sciences :

PROFESSOR, ASSISTANT

PROFESSORS (SOCIOLOGY).

Field of specialisation :

PROFESSOR :

(a) The field of Psychology specialised knowledge of Industrial Educational Psychology. (b) In the field of English familiarity with Laboratory Methods of Teaching English.

ASSISTANT PROFESSORS IN SOCIOLOGY

Specialised knowledge in Urban/Industrial Sociology

N.B.: If the candidates applied for the post of Assistant Professor in Sociology are not found suitable, they may be considered for post of Lecturer in Sociology.

IX. Department of Civil Engineering:
PROFESSOR :

Field of specialisation :

- (a) Structural Engineering (b) Public Health Engineering (c) Transportation (d) Hydraulic Engineering (e) Soil Mechanics and Foundation.

X. Department of Electronics & Electrical Communication Engg. :
ASSISTANT PROFESSOR

Field of specialisation :

- (a) Micro-electronics (b) Industrial Electronics (c) Computer Technology (d) Communication Systems.

XI. Radar & Communication Centre:
ASSISTANT PROFESSOR

(Post temporary during the continuance of the Centre)

Field of specialisation :

- (a) Microwave Engineering & Systems (b) Digital Communication Systems.

XII. Department of Metallurgical Engineering :
Assistant Professor

Field of specialisation :

- (a) Non-ferrous Process Metallurgy and Corrosion (b) Ferrous Process Metallurgy and Furnace Technology/Metallurgical Design

XIII. Material Science Centre :
ASSISTANT PROFESSOR LECTURER

Field of specialisation :

ASSISTANT PROFESSOR :

- (a) Development of high strength/high temperature materials (alloys or composites) and their strengthening mechanism.

- (b) High Temperature Precipitation, Solid State Transformations, Oxidation etc.

LECTURER :

For one post : Master's Degree should be in Metallurgical/Mechanical Engineering/Ceramic Technology, experience of two years in the field of development of ceramics materials and composites.

For second post : Master's Degree in Solid State Physics/Solid State Chemistry/Radio Physics/Electronics Engineering (Solid State Specialisation). Specialised knowledge in Semi-conductor Device Materials.

XIV Department of Architecture & Regional Planning :
LECTURER:

Field of specialisation :

Post-graduate Degree should be in Architecture or Allied Discipline Concerning Building Design and/Building Technology.

XV. Department of Electrical Engineering :
LECTURER:

Any branch of Electrical Engineering.

XVI. Department of Mining Engineering :
ASSISTANT PROFESSOR, LECTURER.

Field of specialisation :

Assistant Professor: Mechanical Handling

Lecturer : Any branch of Mining Engineering

XVII. Department of Agriculture & Engineering:

ASSISTANT PROFESSOR, LECTURER.

Field of specialisation :

ASSISTANT PROFESSOR

Master's Degree/Doctorate Degree should be in Dairy Engineering or Agronomy.

LECTURER

Agricultural Engineering/Dairy Technology/Agricultural Sciences.

Only capable persons with uniformly good academic career, aptitude for teaching Post-graduate and Under-graduate Classes, Research and Development Work need apply.

Adequate provision for reservation of posts for SC/ST candidates as per Govt.

**SHREEMATI NATHIBAI
DAMODAR THACKERSEY
WOMEN'S UNIVERSITY
BOMBAY-400020.**

Applications are invited on prescribed forms available from the University Office, on payment of Rs. 5/- (by money order or in cash) for the following posts to be filled in at the Leclabai Thackersey College of Nursing, Bombay so as to reach the undersigned not later than October 20, 1976.

Sr. No.	Particulars of Post	Medium of Teaching	No. of Posts
1.	Lecturer in Nursing (one temporary & one permanent)	English	Two
2.	Sister-Tutors	"	Two
3.	Clinical Instructor	"	One
4.	Demonstrator (Temporary)	"	One

QUALIFICATIONS

Lecturer

- A consistently good academic record with first or high second class (B+) Master's Degree in Nursing Education or Community Health Nursing or Obstetrics or an equivalent qualification of a foreign University and
- A M.Phil Degree or a recognised degree beyond the Master's level or published work indicating the capacity of a candidate for independent research work. A person with 5 years teaching experience will be preferred.

Sister-Tutor

- Bachelor's Degree in Nursing.
- Two years experience of teaching in a school or a college of Nursing. Experience of Nursing in a Hospital or in a Public Health practice will be an additional qualification.
- Candidate should be registered under Maharashtra Nurse's Act 1966 or at least be eligible for registration.

Clinical Instructor

- Bachelor's Degree in Nursing
- One year's experience of teach-

ing in a school or college of Nursing or two years experience in a Hospital or Community Health Nursing.

- c. Candidate should be registered under Maharashtra Nurse's Act 1966 or at least be eligible for the Registration.

Demonstrator

A First or Second Class Bachelor's Degree in any of the Science subjects viz. Physics, Chemistry or Biology.

Salary Scales

- (i) Lecturer: Rs. 400-40-720-EB-40 800-50-950+admissible allowances (Total initial emoluments about Rs. 830/-)

- (ii) Sister-Tutor: Rs. 350-15-470-20-550+admissible allowances. (Total initial emoluments about Rs. 755/-)

Clinical Instructor } Rs. 250-15-400+ admissible allowances. (Total initial emoluments about Rs. 620/-)

- (iv) Demonstrator

Note: (a) Only suitable candidates will be called for interview.

- (b) The University may recruit a person with a lower qualification only in case a person with the prescribed qualifications is not available or is not considered suitable, provided that such person will have to acquire the prescribed qualifications within five years from the date of his appointment.

- (c) Other things being equal preference will be given to candidates from scheduled castes/scheduled tribes/backward class communities.
- (d) Conditions of service and leave rules will be as laid down under the status from time to time.
- (e) Higher starting salary will be considered in exceptional cases.
- (f) Besides proficiency in English, person with working knowledge of Hindi/Marathi will be preferred.

(Smt.) Kamalini H Bhansali
REGISTRAR

SAMBALPUR UNIVERSITY JYOTI VIHAR : BURLA

Advertisement No 31088-TDS.

Dated. 13-9-76.

Applications in the prescribed form with attested copies of mark-sheets and certificates of all examinations passed are invited for the following teaching posts in the University College of Engineering, Burla.

I.	Name of the post	No. of posts	Scale of pay
1.	Reader in Electronic and Telecommunication Engineering.	Two	700-50-1 250.
2.	Lecturer in Electronics and Telecommunication Engineering.	Three	400-40-800-50-950.

(The scales of pay are likely to be revised).

(All the posts carry C. P. F. benefit and usual Dearness allowance as would be sanctioned by the University from time to time).

II. Essential Qualifications

1. Reader in Electronics and Telecommunication Engineering

- (a) A first class Bachelor's Degree or Master's Degree in Electronics and Telecommunication Engineering/a first class Bachelor's Degree in Electrical Engineering with a Master's Degree in Electronics and Telecommunication Engineering with specialisation in any field of Electronics and Telecommunication Engineering.
- (b) Seven years' experience in teaching/ Industries / Research for Bachelor's Degree holders which is relaxable by two years for candidates having Master's Degree.

2. Lecturer in Electronics and Telecommunication Engineering.

- (a) A first class Bachelor's Degree or Master's Degree in Electronics and Telecommunication Engineering/a first class Bachelor's Degree in Electrical Engineering with a Master's Degree in Electronics and Telecommunication Engineering.

III. Desirable Qualifications

1. Reader in Electronics and Telecommunication Engineering.

- (a) Experience in guiding research.
- (b) Corporate membership of recognised professional institutions.
- (c) Doctorate Degree.
- (d) Teaching experience in an Institution of University standard.

2. Lecturer in Electronics and Telecommunication Engineering.

- (a) Some research experience and capacity to conduct independent research.
- (b) Teaching experience in an University standard Institution.
- (c) Corporate memberships of recognised professional institutions.
- (d) Doctorate Degree.

IV. Age of retirement—Sixty years for all the above posts.

Seven copies of the application form will be supplied from the University office to each candidate in person on cash payment on Rs. 10/- (Rupees ten only). Candidates intending to receive form by post are required to send

(a) Crossed Indian Postal Order of Rs. 10/- payable to the Finance Officer, Sambalpur University, Sambalpur (b) Self addressed envelope (23 x 10 cm) with postage stamps worth Rs 2.85 p affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN THE SAMBALPUR UNIVERSITY" superimposed. Money Order, Cheque or Bank Draft will not be entertained.

The last date of receipt of application by the undersigned is 16.10.76.

Candidates will be required to appear before a Selection Committee appointed by the University at their own expenses. Selected candidates will be required to join the post within one month from the date of issue of appointment order.

Issue of this advertisement does not make it binding on the part of the University to make appointment.

All communications should be addressed to the undersigned by designation and not by name. No interim reply to any query shall be given.

Sd/-
G. P. Guru
REGISTRAR

PUNJABI UNIVERSITY, PATIALA.

(Advertisement No. 105/76/SPS/Estt)

Applications are invited for appointment to the following posts :-

Registrar (Grade Rs. 1100-50-1300-EB-60-1600)

Candidates should hold at least a second class Master's degree from an Indian University or should possess equivalent qualifications from a foreign University with at least ten years' experience in a highly responsible position in a University/Educational Institution or Government Office. Persons with experience of University administration will be given preference.

The Selection Committee might relax the qualifications and experience in the case of candidate of exceptional merit.

Appointment to this post will be made for a term of four years or upto the age of 60 years, whichever is earlier.

Controller of Examinations

(Rs. 1100-50-1300-EB-60-1600)

- (i) At least a 2nd Class Master's Degree from an Indian University or equivalent qualifications from a foreign University;
- (ii) At least 10 years' experience of working in a University/Educational Institution or Government office in senior administrative positions;
- (iii) Sufficiently long experience of conducting University examinations and thorough knowledge of examination problems and procedures.

Persons having background of University administration will be preferred. The Selection Committee might relax the qualifications and experience in the case of exceptional merit.

1. Readers in Zoology—Two—(Rs. 1200-50-1300-60-1900)
Lecturers one each in Zoology, Hinduism and Christianity (Rs. 700-40-1100-50-1600).

Qualifications Common for all.

- (a) A Doctor's degree or published work of an equally high standard in the relevant subject and
- (b) consistently good academic record with 1st or high second class (b+) Master's degree in the relevant subject or an equivalent degree of a foreign University.
- (c) Qualifications prescribed in (b) are relaxable in case the research work of the candidate, as evident either from his thesis or from his published work, is of a very high standard. For the post at No (2) if a candidate possessing a Doctor's degree or equivalent published work is not available or is not considered quite-

...a person possessing consistently good academic record (due weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed on the condition that he obtains a Doctor's degree or gives evidence of published work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Specializations.

1. Readers in Zoology.

Experimental Embryology and Animal physiology.

2. Lecturer in Zoology.

Cytenetics.

3. Lecturer in Christian Studies.

The qualifications in (a) and (b) above shall be in the subject of Philosophy/Comparative Religion/Theology/Church History.

4. Lecturer in Hinduism.

The qualifications in (a) and (b) above shall be in the subjects of Philosophy/Comparative Religion Ancient Indian History/Sanskrit.

DEPARTMENT OF PHYSICS

Senior Engineer (Electronics)-One (Rs. 1100-1600)

Candidates should be M.E./M. Tech. electronics with 5 year experience or M.Sc. Physics with 7 year experience or B.E. Electronics with 10 years experience in design, fabrication and testing of electronic instruments and circuitry in a reputed industrial concern or recognised laboratory. Candidates with research experience and published work shall be given preference.

Engineer (Electronics)-One (Rs. 700-1300)

Candidates should be M.E./M. Tech. with 2 years experience, or M.Sc. electronics with 3 years experience, or B.E. electronics with 5 years experience in maintenance and fabrication of electronic instruments.

Workshop Superintendents-Two (Rs. 700-1300)

- (1) Candidates should be B.E. or equivalent degree in Mechanical Engineering with 5 years' experience or a diploma in mechanical Engineering with 7 years' experience in modern machine shop. The candidates must be conversant with the use of all types of machineries used in a modern machine shop.
- (2) Diploma or equivalent examination in glass blowing with 10 years' experience in a reputed industrial concern or a recognised laboratory. The candidates must be conversant with the use of all types of equipment used in a modern glass blowing shop and should have sufficient experience of fabrication of laboratory glass apparatus and familiarity with vacuum techniques.

Senior Technical Assistants-Three (Rs. 325-575).

1. Diploma in refrigeration engineering with 5 years' experience or under-Matric with 10 years experience in repair and maintenance or refrigeration equipment.
2. Diploma or equivalent examination in glass blowing with 5 years experience or under-Matric with 10 years' experience of glass blowing in a reputed industrial concern or recognised laboratory. Candidates must be conversant with fabrication of different types of glass seals.
3. Diploma or equivalent examination in Optics Workshop Technology with 5 years experience or under-Matric with 10 years experience in fabrication of optical components.

Research Associate (Rs. 700/-p.m. all inclusive).

Candidates should have Ph. D or equivalent published work in experimental nuclear Physics.

Research Associate (Rs. 500/-p.m. all inclusive)

Candidates should have M. Phil or two years experience in experimental nuclear Physics.

Research Scholars (One each in Punjab Historical Studies and Department of Speech, Drama & Music) and three posts of Research Scholar-cum-Demonstrators Physics (Tenable for a period of two years in the first instance @ Rs. 400/-p.m. all inclusive)

Candidates should possess at least second class Master's degree in the res-

pective subject with at least one year's teaching/research experience after obtaining the Master's degree provided that the condition of experience may be relaxed in the case of first class M.Sc.'s/M.A.'s, provided further that candidates with at least 55% marks both in B.A./B.Sc. and M.A./M.Sc. could also be considered in case no first class M.Sc./M.A. is available.

For Research Scholar in Punjab Historical Studies.

The Master's degree should be with particular reference to Punjab History. Preference will be given to candidate with dissertation in M.A.

General for all

Higher start within the grade admissible depending upon the ability and experience of the candidate.

House rent and Dearness allowance, Provident Fund and Medical facilities according to University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed postal order worth Rs. 5/- (Rs. 2/- for candidates belonging to Scheduled Castes Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala should reach the University by 13-10-76. The forms can be had from the Superintendent (Establishment) by sending a self-addressed envelope of the size of 23 x 10 cms. stamped with 25 paise postage.

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by 15-10-70.

REGISTRAR

UNIVERSITY OF DELHI

(GS/Advt/76/18)

ADMISSION NOTIFICATION-1976-77.

Department of Philosophy

Applications are invited from eligible candidates for admission to M. Phil. Course in Philosophy. The candidate must have passed M.A. Examination in Philosophy or any other equivalent examination from a recognised University securing at least 55% marks in the aggregate. This condition will not apply to the teachers of the University of Delhi.

All intending candidates should send their preliminary applications on plain paper stating their educational qualifications (examinations passed with marks obtained in each paper/subject) to the Head of the Department of Philosophy, University of Delhi, Delhi-110007 before October 10, 1976. They should appear for an interview on Monday, October 18, 1976 at 11.30 A.M. in the Department alongwith their original certificates and mark-sheets.

R.V. RAMAN
OFFG. REGISTRAR

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Anthropology

1. Guha, Anima. A study of inheritance of some morphological and behavioural traits. University of Poona.

Biochemistry

1. Angle, R.Y. Cultivation and flavour development in mushroom cultures. University of Bombay.
2. Chattopadhyay, Amar. Studies on some vegetable poison of forensic interest. University of Calcutta.
3. Chattopadhyay, Amar Kumar. The experimental hypothesis to explain the mechanism of luteal regression or uterine evacuation by prostaglandin F_{2a} in rats. University of Calcutta.
4. Datta, Asis. Biochemical studies on bacteriophage PM 2. University of Calcutta.
5. Gautam, M.S. Studies on oilseed protein. University of Bombay.
6. Jaswant Singh. Biochemical studies on the pulmonary response to inorganic dust. University of Bombay.
7. Ninjoor, V. Lysosomal functions during protein starvation. University of Bombay.
8. Patil, Manohar Shankar. Metabolism of nucleic acids and nucleoproteins in X-irradiated rats. University of Poona.
9. Pukhrambam Raikumar Singh. Physiological aspects of growth and development of tasar silkworm-antheraea proylei in relation to certain food plants. University of Gauhati.
10. Sabnis, G.S. Seed proteins-Their physico-chemical rheological properties. University of Bombay.
11. Sarkar, Chira Ranjan. Influence of ascorbic acid in the process of glycolysis. University of Gauhati.
12. Sivaraman, E. Evaluation of the nutritive value of pulse proteins with and without supplementation of amino acids. Kerala Agricultural University.
13. Srinivasan, V. Pantothenic acid and vitamin B₁₂ metabolism: Human and experimental studies. Osmania University.
14. Subba Rao, B. Catalytic properties of bovine brain hexokinase: A chemical investigation. University of Bombay.
15. Venugopal, V. Regulation of arginine dihydrolase pathway in clostridium sporogenes. University of Bombay.
16. Vyas, Soeh Prabha. Regulation of cholinesterase study of positive and negative modulators. Indore University.

Microbiology

1. Baqui, Salma Mohammed Amin. Factors affecting mango ripening. M.S. University of Baroda.
2. Bhamaria, R.P. Studies in shaken and submerged cultures of typhoid. University of Bombay.
3. Goetha, L. Studies on the effect of influenza virus infection on the germ cells of male mice. Osmania University.
4. Khandeparkar, V.G. Cellulose from *Penicillium funiculosum* (F4). University of Bombay.
5. Kulkarni, M.S. Studies on pertussis vaccine. University of Bombay.
6. Madia, Ashwin Mohanlal. Studies on the factors affecting flavinogenesis in *Fremothecium ashbyii*. M.S. University of Baroda.

Botany

1. Asthana, Krishan Sahai. Studies on the evolution of high yielding varieties of oil seeds. Bhagalpur University.
2. Bhattacharyya, Sunilkumar. Cytogenetics of Indian pulses. University of Calcutta.
3. Ghosh, Krishna. Palynological studies on certain families of the angiosperms in relation to taxonomy. University of Calcutta.
4. Haragopal, T. Physiological alterations associated with infection by chlorotic spot virus in groundnut, *Arachis hypogaea* (L.) leaves. Sri Venkateswara University.
5. Hedge, Sadanand Nagesh. Cytological chemotaxonomical studies in the tribe epidendreae of orchidaceae. Karnatak University.
6. Krishna Rao, N. S. R. Studies on the bacterial leaf blight of rice and the incitant *X. oryzae*. Sri Venkateswara University.
7. Muhiul Islam. On the occurrence and distribution of higher basidiomycetes in the Sibsagar District. University of Gauhati.
8. Narasimha Reddy, M. A Study of host-parasite relations in damping off of groundnut, *Arachis hypogaea* (L.) caused by *Rhizoctonia solani* (Kunn). Sri Venkateswara University.
9. Narayanrao Pande, Bhawanipant. Studies in air spore over some fields. Marathwada University.
10. Patel J.N. Effect of temperature and pretreatment with ascorbic acid-H₂O₂ of cumin seeds on its growth and metabolism. Gujarat University.
11. Raja Rao, Kanda Govinda. Cytogenetical studies in the genus *Physalis*. Andhra University.
12. Raju, E. C. Morphohistogenetic studies in some rhizomatous plants: Ginger, turmeric and mango ginger. Sardar Patel University.
13. Santha Kumari, M. Mode of action on phenyl urea and triazine type herbicides on certain crop and weed species. Sri Venkateswara University.
14. Sarkar, Priyush Kanti. Mechanism of adventitious root formation in cuttings with special reference to its control at sub-cellular level. University of Burdwan.
15. Satyanarayana, Tripurari. Fossil flora of Andhra Pradesh (India) Godavari District. University of Poona.
16. Thakur, S.B. Studies in some Indian fungi. University of Bombay.
17. Tungare, S. G. Morphological studies in leguminosae, caesalpiniaceae. University of Bombay.

Zoology

1. Aditya, Aji Kumar. Induced cell transformation in hydra. University of Calcutta.
2. Agarwal, Vishnu Bhagwan. Studies on the biology and ecology of mound building termites, *Odontotermes microdentatus* (Roonwal and Sen-Sarma) and *Odontotermes obesus* (Rampur) (Insecta: Isoptera: Termitidae). Meerut University.
3. Chandrashekhara Gupta, T.R. Studies on primary and secondary production in Arabian Sea of Cochin. University of Bombay.
4. Chhappar, B.F. Taxonomy and some aspects of biology of stomatopoda of Maharashtra. University of Bombay.
5. Das, Sukumar. Factors regulating the behaviour of pathogens inside the insect vector with special reference to mosquito and sand-fly. University of Calcutta.

6. Dhamne, Krishnachandra Pundlik. Biological studies of the clam, *Paphia laterisulca*. Marathwada University.

7. Kaul, Hirdéy Nath. Studies on the ecology of cosmopolitan mosquito, *Culex pipiens fatigans* (Wiedemann 1828) in rural, semi-urban and urban areas near Delhi. University of Delhi.

8. Kuldip Mohan. Studies on the physiology and histochemistry of the digestive system of a few birds. Meerut University.

9. Kulkarni, G V. A study on a gobioid fish, *Tyapuchen vagina* (Block and Schneider). University of Bombay.

10. Pandey, Rajiv Lochan. Studies on the cytology of the parasitic platyhelminthes with special reference to their developing germ cells. Avadhesh Pratap Singh University.

11. Radha Krishna Pillai, K. Chromosome studies on some North Indian polyphagous beetles (Coleoptera: Insecta). B.N. Chakravarty University.

12. Rajendra Singh. Studies on the food, feeding mechanism and post embryonic development of alimentary canal in certain dermapteran insects. Magadh University.

13. Ranjit Kaur. Histophysiology of the avian ovary. Punjab Agricultural University.

14. Shrivastava, Pushpa. Studies on the chromosomes of certain insects with special reference of the effect of drugs. Bhopal University.

15. Srihari, K. Cytological and cytochemical studies on a few fresh water ciliates *urostyla* sp. n. *Oxytricha* Sp. n. *hypotrichida* and *bb Pharisma intermedium* (heterotrichida). Bangalore University.

16. Subha Rao, N V. Studies on Indian neritids (Mollusca: Gastropoda, Neritidae). University of Calcutta.

17. Telang, Archana Nityanand. Some aspects of the respiratory system of selected blattaria. University of Poona.

18. Vijayalakshmi, Vaddi. Studies on the gut and body wall in some digenetic trematodes with special reference to biliary farms and observations on the anatomy and biology of *Xenopharynx solus* (Nicoll 1912). Andhra University.

Medical Sciences

1. Basu, Bimalkumar. Studies on serum proteins, alkaline phosphatases and transaminases in normal abnormal pregnancy. University of Calcutta.

2. Kamat, Narasinha Venkatrao. Role of alkaline phosphatase in periodontal disease with particular reference to calcium and phosphorous metabolism: A biochemical study. University of Poona.

3. Samuel, R. Studies on the spheroplasts of *Mycobacterium tuberculosis*. University of Delhi.

Agriculture

1. Agnihotri, Mahesh Prasad. Growth of tobacco plant in Rewa soil: A study of the growth of tobacco plant in different soils of Rewa region and the affect of inorganic chemical fertilizer, alkali and alkaline earths fertilization on its growth. Avadhesh Pratap Singh University.

2. Bera, Gaurisankar. Studies on the nutritio-physiology of rice plant. University of Calcutta.

3. Chakrabarti, Dinendrakumar. Studies on growth, flowering and development of fruit in cashew, *Anacardium occidentale* (L.). University of Calcutta.

4. Gangwar, Babooji. Effect of different levels of nitrogen on yield and quality of pure and mixed crop of maize under rainfed conditions. Meerut University.

5. Gurmail Singh. Studies on toxicity and metabolism of iodofenphos in stored grain pests. Punjab Agricultural University.

6. Jayachandran Nair, K. Epidemiology of blast disease of rice. Orissa University of Agriculture and Technology.

7. Kamalam, P. Studies on the induction of mutations in the genus *Gossypium*. University of Kerala.

8. Kashi Ram. Studies on the sex pheromone of the angoumois grain moth, *Sitotroga cerealella* (Olivier). Punjab Agricultural University.

9. Mandal, Baridbaran. Effect of source of nitrogen superphosphate and their methods of application on the growth and yield of dwarf Indica rice. Orissa University of Agriculture and Technology.

10. Milap Chand. Effect of gypsum and organic amendments on chemical equilibria and availability of zinc in saline-sodic soils. Punjab Agricultural University.

11. Muthuswami, S. Studies on some aspects of growth and flowering in *Jasminum auriculatum* and *J. grandiflorum*. T.N. Agricultural University.

12. Patowary, Umakanta. The nutritional and hormonal studies on pineapple. University of Gauhati.

13. Radhakrishnan, S.A. Financing farm development in Tamil Nadu-An economic analysis. T.N. Agricultural University.

14. Rama Kant Singh. An enquiry into the farm structure cropping pattern and level of income of Sikrara Block, District Jaunpur, U.P. Kanpur University.

15. Ramchandra Reddy, A.G. Studies on biochemical factors associated with resistance to leaf blight caused by *Drechslera turcica* (Pass) Subram and Jain in sorghum, *Sorghum vulgare*. The University of Agricultural Sciences, Bangalore.

16. Saxena, Bishambhar Nath. Studies on the nutritional and ecological relationship on the bionomics of *Haemadipsa sylvestris* (Blanchard) from Assam. University of Gauhati.

17. Shanti Sarup. Economics of multiple cropping in Haryana State (India). Punjab Agricultural University.

18. Sharma, Om Parkash. Studies on some aspects of weed control in mung, *Vigna radiata* (L.) Wilczek and Mash, *Vigna mungo* (L.). Punjab Agricultural University.

19. Sreedharan, C. Studies on the influence of climatological factors on rice under different water management practices. Orissa University of Agriculture and Technology.

20. Talukdar, Haridev. Biochemical activities of certain soil fungi. University of Gauhati.

21. Tewari, Harmesh Kumar. Characterization of cellulase enzymes in cellulolytic bacteria. Punjab Agricultural University.

Veterinary Science

1. Sahota, Pritam Singh. Studies on prevalence and pathology of reproductive disorders in poultry. Punjab Agricultural University.

2. Sharma, Ramesher Dass. Studies on retained placenta in buffaloes. Punjab Agricultural University.

SOCIAL SCIENCES

Psychology

1. Auluck, Shanti Devi. Subject factors in relation to vigilance performance. University of Delhi.

2. Dharmagadan, B. Creativity in school children-An analytical study. University of Kerala.

3. Ghosh, Sahita. A study on the social maturity of pre-school-age Bengalee children of Calcutta City belonging to different socio-economic groups. University of Calcutta.

4. Gupta, Mahesh Chandra. Delineation of factors underlying dyadic interpersonal relationships. I.I.T., Delhi.

5. Mythili, S.P. Retroactive and proactive inhibition in verbal paired associates learning-The influence of rigidity and flexibility. Sri Venkateswara University.

6. Sreedhar, Chandra Prasad. Personality patterns of neurotics, psychotics, psychosomatics and criminals. University of Kerala.

Sociology

1. Dev, Kumudini. Traditionalism to non-traditionalism—A sociocultural study of the changing norms and values of the university students of Ujjain City. Indore University.
2. Gupta, Lakshman Das. Bhartiya savidhan mein sam-pati ka adhikar—Samajik rajnaitik evam arthik vyakhya : 1974 tak. Jiwaji University.
3. Mankidy, Jacob. Participative management in Indian banking industry. University of Bombay.
4. Mhatre, S.R. Social changes in nineteenth century Maharashtra. University of Bombay.
5. Sur, Sisirkanti. Socio-economic implications of diffusion of agricultural innovations in a rural region of Lower Bengal. University of Calcutta.
6. Thakur, Rudranand. Some sociological aspects of administrative elites in Bihar with special reference to the District of Bhagalpur. Bhagalpur University.
7. Usha Rani. Attitude of working women towards others and vice-versa in West Bengal. University of Calcutta.

Political Science

1. Jha Rudra Narain. The United States and the Kashmir problem (1947-58) : The conflict analysis and the attitude of a super power. Bhagalpur University.
2. Meharwade, Krishnasa Monosa. Union territories in India : Goa—A case study. Karnatak University.
3. Panda, Dulagobinda. Political philosophy of Pandit Gopabandhu Das. Utkal University.
4. Sankale, Lakhna T. Samajik evam rajnaitik parivartan kee takneek : Marx evam Gandhi ka tulanatmak adhyayan. Indore University.
5. Sharma, Pradhu Dayal. Legislative elite in Haryana : A study in political socialization. B.N. Chakravarty University.
6. Srivastava, Narendra Nath. A critical study of Lenin's policy of peace and co-existence in the light of his theory of imperialism and proletarian revolution. Meerut University.

Economics

1. Chatterjee, Renuka. A study of problems and prospectus of women workers in textile mills with particular reference to the textile mills in Vidarbha. Nagpur University.
2. Dhurandher, Laxmi. Women labour problem in Chhattisgarh region. Ravishankar University.
3. Gupta, Janeshwar Prasad. Woolen hosiery industry in Northern India (Punjab, Haryana and U.P.). Meerut University.
4. Kejriwal, Vijay Kumar. Indo-American trade relations 1900-1947. Bhagalpur University.
5. Mahanta, Trishna. Foreign aid and India's economic development. University of Gauhati.
6. Mehra, Bai Krishan. Pricing of drugs and pharmaceuticals in India. University of Delhi.
7. Pitre, Vidya Vinayak. A study of India's imports of machinery and transport equipment with special reference to import policy and import substitution 1960-61 to 1970-71. University of Poona.
8. Prakash Rao Naidu, M. Marketing of rice in Raipur District of Madhya Pradesh. Ravishankar University.
9. Ray, Durgadas. Reorganisation of rural credit in West Bengal through co-operative institutions during the plan period. University of Calcutta.
10. Shanmukhan Aiyer, P.S. On measuring the dead-loss due to unutilized capacity in organized Indian industries. University of Bombay.
11. Vincent, Kaushal. Socio-economic study of a growth centre-bhoilymbong a village in Meghalaya. University of Gauhati.

Law

1. Puri, Santosh Kumar. Supreme Court of India as instrument of social justice. B.N. Chakravarty University.

Public Administration

1. Koratkar, Arvind Vithal. Pondicherry under the French rule—A study in colonial administration. Osmania University.

Education

1. Abu Baker, Moothedath. Centre—State relations in Indian education during the Fourth Plan period. M.S. University of Baroda.
2. Arora, Kamla. A study of characteristic differences between effective and ineffective higher secondary school teachers. Jamia Millia Islamia.
3. Bhal, J.D. Study of vocabulary in Gujarati of pupils of standard VI in Saurashtra. Saurashtra University.
4. Desai, C.D. Girls access to school education in Gujarat State—A study of factors and problems in historical perspective. University of Bombay.
5. George, Mathew. Classroom behaviour of teachers and its relationship with their creativity and self-concept. M.S. University of Baroda.
6. Govinda, R. Development of a programmed text on educational evaluation and experimentally studying its effectiveness as instructional material for B Ed. students. M. S. University of Baroda.
7. Kansal, Megh Raj. Development of educational administration in Punjab since 1854. Punjabi University.
8. Koura, Surinder Pal. A critical study of the development of secondary education in Punjab since the year 1947. Punjabi University.
9. Lahkar, Bina. The progress of women's education in Assam from 1874 to 1970. University of Gauhati.
10. Marker, N S. Survey of teacher education in the state of Maharashtra. University of Bombay.
11. Ram Chander. Relationship of attainments in theory subjects in B Ed course with attitude as a teacher and teaching efficiency. B.N. Chakravarty University.
12. Sangcettharao, Kurapaty. Study of self perception, need achievement and academic performance of the prospective secondary school teachers. M.S. University of Baroda.
13. Shirole, Chaturbhuj Bankat. To develop programmed learning material for agricultural subjects in Marathi medium secondary schools and to study its utility for different categories of students. University of Poona.
14. Sreedharan Navar, K. A study of the concept of standards in English through an analysis of the text books prepared for secondary school pupils in Kerala since 1952. University of Kerala.
15. Trivedi, Sarva Pal. Bharat ke madhvarnak shiksha andalon ka adhyayan. Avadhesh Pratap Singh University.
16. Vaze, Narayan Anant. Effects of modeling and microteaching on aquisition of certain skills in questioning. M.S. University of Baroda.

Commerce

1. Bhattacharyya, Sivir Kumar. Nature and behaviour of the capital structure of the Indian jute industry, 1959-68. University of Calcutta.
2. Jain, V.K. A study of costs and returns on selected forms. Bhopal University.
3. Mishra, R. N. Economics of pond fish culture in Madhya Pradesh. Bhopal University.
4. Patel, Manubhai Talsinhaji. Working of khadi and village industries co-operatives in a typical District in Gujarat (In the sphere of co-operative organisation of rural industries). Sardar Patel University.
5. Pathak, Mahesh Chander. Industrial relations in the steel Units of Hindustan Steel Limited. Bhagalpur University.

CURRENT DEVELOPMENTS IN EDUCATION

A list of select articles culled from Periodicals received in AIU Library during September, 1976

EDUCATIONAL SOCIOLOGY

- Adelson, Joseph "What generation gap?" *American Review* 20 (4); Summer 76 : 24-32
- Domenach, Jean-Marie "Education and society in the context of the western industrialised countries" *Prospects* 6 (1), 1976 : 7-18
- Machue, Stuart "Politics and education" *Oxford Review of Education* 2 (1): 76 : 17-25
- Perkins, David S. "Aspects of a student discontent-1975". *Journal of Higher Education* 46 (4), July-Aug 75 : 471-7
- Peterson, Robert G. "Higher education's social contract to serve the public interest" *Educational Record* 56 (4); Fall 75 : 250-6

EDUCATIONAL PLANNING

- Maharaj, G S "New education structure : A viewpoint" *University News* 14 (8) Aug 76 : 7-8

EDUCATIONAL ADMINISTRATION

- Birnbaum, Robert "Using the calendar for faculty development" *Educational Record* 56 (4) Fall 75 : 226-30
- Chan, S. C. I. and Lung, Y. W. "Halls of residence and the role of wardens and tutors" *Australian University* 13 (1) May 76 : 55-63
- Hirsch, Wendy and Morgan, Roger "Stretch a point and clear the way" *Times Higher Education Supplement* (248), 23 July 76 : 13
- Kahn, Harry "Relevant philosophy for in-service training" *Times Higher Education Supplement* (252) 20 Aug 76 : 7
- Koch, L. K. "Restructuring the university system" *University News* 14 (9) Sept 76 : 4-5, 18
- Miller, John D. "Higher education management versus business management" *Educational Record* 56 (4), Fall 75 : 221-5
- Moore, Michael A. "Experiment in governance: The Ohio faculty senate" *Journal of Higher Education* 46 (4); July-Aug 75 : 565-79
- Nakle, Ted "Influences of geographic location on university admission" *Times Higher Education Supplement* (249) 30 July 76 : 13
- Pande, P. P. "Information service in universities" *University News* 14 (9), Sept 76 : 3, 7
- Reach, James H. I. "Academic department chairperson : Functions and responsibilities" *Educational Record* 57 (1) Winter 76 : 13-23
- Wergin, Jon F., Mason, Elizabeth J and Munson, Paul J. "Practice of faculty development: An experience derived model" *Journal of Higher Education* 47 (3), May-June 76 : 289-309.
- Young, Kenneth I. "Evaluating institutional effectiveness" *Educational Record* 57 (1); Winter 76 : 45-52.

CURRICULUM

- Gibb, Francis "Getting communication studies into the academic headlines" *Times Higher Education Supplement* (253), 27 Aug 76 : 4

TEACHING

- Ainsworth, David "Self-Instruction blues" *Journal of Higher Education* 47 (3) May-June 76 : 275-87

- Hill, Brian V. "Multi-disciplinary courses-mush or muscle?" *Australian University* 14 (1); May 76: 48-57.
- Miller, Allen H "Preparation of tertiary teachers". *Australian University* 14 (1); May 76: 33-42.

EDUCATIONAL RESEARCH

- Rudd, Ernest. "Unto everyone that hath shall be given and he shall have abundance" *Times Higher Education Supplement* (247); 16 July 76: 9.

EVALUATION

- Crittenden, Kathleen S., Norr, James L. and LeBailly, Robert K "Size of university classes and student evaluations of Teaching" *Journal of Higher Education* 46 (4); July-Aug. 75: 461-70.
- Green, Madeleine F and Sullivan, John J. "Credit for noncollegiate learning" *Educational Record* 56 (4); Fall 75: 257-61.
- Julka Satya Pal "Examination reforms-III Question Banks". *University Affairs* (Delhi) 3; July-Aug. 76 : 11-13, 23
- Stones, Edgar. "New role for the external examiner" *Times Higher Education Supplement* (250); 6 Aug 76: 7.

ECONOMICS OF EDUCATION

- Clark, Jill "Correlates of educational policy priorities in developing nations" *Comparative Education Review* 20(2); June 76 : 123-39
- Walker, David "Puzzle of assessing university outputs". *Times Higher Education Supplement* (253) 27 Aug 76. 5.
- Das, D P. "Our medical education. A plea for radical approach". *Mainstream* 14 (45); 10 July 76: 27-30

ADULT EDUCATION

- Amrik Singh "Adult education and development: The case of India" *Indian Journal of Adult Education* 37 (6), June 76: 3-9
- Cross, K Patricia "Education for varied talents". *American Review* 20 (4) : Summer 76: 90-4.
- Mathur, K S "Role of universities in adult education and extension" *Indian Journal of Adult Education* 37 (6), June 76, 16-18
- R. K Singh "Open university-Indian context". *Indian Journal of Adult Education* 37 (6); June 76 : 10-12.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

- "ASPECTS OF education in China : Elements for a dossier". *Prospects* 5 (4); 1975 : 479-503.
- Ham, David H "Duality in higher education : Are there two systems?" *Australian University* 13 (1); May 75 : 19-38.
- Santanagopalan, S "Higher education in Australia". *University News* 14 (9); Sept 76 : 6-7.
- Williams, Peter. "Education in developing countries : The view from Mount Olympus". *Prospects* 5 (4); 1975 : 457-78.
- Yarmotinsky, Adam. "Challenges to legitimacy : Dilemmas and directions". *Change* 8 (3); Apr 76 : 18-25.
- Yousif, Abdelwahid A. "African university and its community : The search for a relevant role". *Covergence* 9 (2); 1976 : 64-74.



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'Roquefort' is a cheese and not a fort; and that 'Creme St Germaine' is not the capital of Germany but plain pea soup.

Watch her at work. She can soothe a bawling baby, offer thirst-aid to a fainting executive and choose the perfume for your girl friend or your wife. She is there before you need her because she was taught to anticipate.

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Prime Minister Indira Gandhi who was conferred honorary degree arrives to attend the special convocation of Mauritius University, Port Louis.

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF DELHI

Advt No Estab. IV 37/76

Applications on the prescribed form are invited for the following posts :-

Sr No	Department	Designation
1.	Sociology	One Professor in Quantitative Method in Sociology in areas of Specialization indicated below
2.	Physics & Astro-physics	One Reader
3.	Faculty of Science	One Reader in History of Science and Scientific Methods
4.	Economics	One Reader
5.	Commerce	One Reader
6.	Linguistics	Two Readers
7.	Psychology	One Reader (Temp upto 15.8.1977)
8.	Zoology	One Reader
9.	Sanskrit	(i) One Reader (Temp but likely to continue) (ii) One Lecturer (Temp upto 15.8.1977)
10.	Faculty of Management Studies	Seven Lecturers
11.	Library (Reprographic Unit)	Four Machine Operators

The Scales of Pay of the posts are :

1.	Professor	Rs. 1500-600-1800-100-2000-125-2-2500
2.	Reader	Rs. 1200-50-1300-60-1400
3.	Lecturer	Rs. 700-40-1100-50-1600
4.	Machine Operator	Rs. 200-6-280 EB-5 326 8-366 EB-5 390 10-400

All posts carry D.A., C.C.A. and H.R.A. as admissible under the rules in force from time to time

I. ESSENTIAL QUALIFICATIONS FOR :

1. Professorship :

A Scholar of eminence Independent published work of high standard and experience of teaching Post-graduate classes and guiding research for a considerable period desirable

2. Readerships :

Good academic record with first or high second class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work

Independent published work in addition to the published work mentioned above, with at least 5 years' teaching experience in Honours Post-graduate classes essential.

3. Lectureships :

Essential : Consistently good academic record with a First or high Second class (B+) Master's Degree or an equivalent degree of a foreign University in the subject concerned

Desirable (in order of preference) :

(i) A Doctor's Degree or Evidence of research work of equivalent standard in the subject concerned.

(ii) Teaching experience of Degree/Postgraduate classes

Provided that if a teacher is not a Ph.D. at the time of his/her appointment and does not qualify himself/herself for the award of a Ph.D. Degree from a recognised University in the subject which is being taught by him/her within the period

of five years from the date of his/her appointment or does not give evidence of research work of equal standard within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of five years till such time he/she fulfils the above mentioned requirements

4. Machine Operators :

Higher Secondary with working knowledge of Photocopying machines

II. SPECIAL DESIRABLE QUALIFICATIONS FOR :

1. Professorship in Quantitative Method in Sociology in areas of Specialization such as
(a) Social Stratification
(b) Political Sociology,
(c) Industrial Sociology,
(d) Urban Sociology,
(e) Sociology of Education,
(f) Sociology of Population,
(g) Sociology of Family and Kinship

2. Readerships in Linguistics
Theoretical Linguistics with one of the following additional Specializations :-
(a) Socio-linguistics
(b) Generative Semantics
(c) Computational Linguistics and Experimental Design

Note This is in supersession of the earlier advertisement

3. Readership in Zoology :
Experience of Research guidance Specialization in Endocrinology, Fish Biology, Cell Biology or Entomology

4. Lectureships in Management Studies

Master's degree or an equivalent degree of a foreign University in Engineering, Technology, Business Management, Economics or Commerce with specialization in any one or more of the following areas :-

Business Policy, Production Management, Management and Computer, Marketing Research, Financial Management, Project Management, Materials Management, Business and Government or Management Accounting

For persons specialising in Financial Management or candidates with Chartered Accountancy or specialization in Cost Accountancy will be given preference

Candidates with consultancy executive experience or with teaching experience in post-graduate programmes in Business Management will be given preference. Familiarity with the case method of instruction training in modern methods of instruction in management training abroad in the field of Management will be additional qualification

The prescribed application form can be had from the Information Office of the University either personally or by sending a self-addressed envelope (5 x 11") with postage stamps worth Rs. 2.55

Selected candidates will have to produce the original documents relating to their age qualifications experience, etc. at the time of interview

Application (separate for each post) accompanied by attested copies of Degrees, other certificates, mark sheets, published research articles, etc. should reach the undersigned not later than 15th November 1976

Note 1 It will be open to the University to consider the name of suitable candidates who may not have applied. Relaxation in any of the qualifications may be made in exceptional cases, on the recommendations of the Selection Committee

2 Canvassing in any form by or on behalf of the candidates will disqualify

3 Candidates from outside Delhi for the Teaching posts, called for interview will be paid contribution towards travel expenses equivalent to 1st single second Class Rail fare

4 Certain percentage of posts in the cadres of Non-teaching, are reserved for Scheduled Castes, Scheduled Tribes and Ex-servicemen.

5. For post at Sr. No. 5, viz Readership in Commerce, candidates having post-graduate qualifications in Economics can also apply.

Delhi 110007
14th October, 1976

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Editor : ANJANI KUMAR

Centralised Postgraduate Teaching

Gujarat University has decided to centralise all postgraduate teaching. This is a development of momentous importance and deserves to be understood in all its bearings.

Historically speaking, postgraduate teaching started in colleges. That was for the simple reason that the colleges were established first and the universities came later. The first successful attempt to centralise postgraduate teaching was made in Calcutta in the beginning of the century by Asutosh Mukherji. He could perceive, as very few of his contemporaries could, that for half a century almost universities had done little more than to organise examinations for students. Properly speaking, universities were meant for postgraduate teaching and research. When he put forward this concept, there was a good deal of persistent opposition to his plan to centralise all postgraduate teaching under the auspices of the University but Asutosh Mukherji did not waver in his resolve. Though it took him several years to get the proposal accepted, he eventually had it accepted and in spite of so many pulls and pressures exerted upon Calcutta in recent decades, Calcutta has survived as a notable centre of research and scholarship primarily because all postgraduate teaching is handled by the University. Even Presidency College which can easily be regarded as one of the best colleges in the country does not admit students at the master's level. They are all instructed by the University though some members of the Presidency staff do participate in the teaching work.

Bombay and Madras continued to follow the traditional pattern. They modified it to this extent that while colleges continued to admit students, the universities also established certain postgraduate departments. By virtue of their greater capacity to attract men and women of talent, the universities were able to establish their pre-eminence in the matter. The University of Delhi followed the model of Calcutta with results that are entirely beneficial.

In the other States of India, the pattern varied from State to State. In Bihar, for instance, till very recently, no college undertook postgraduate teaching. In U.P. on the other hand a large number of colleges admitted students to postgraduate classes. In the sixties and seventies when the student numbers were booming, it became a fashionable thing for colleges in U.P. to get affiliation for some postgraduate subject or the other. This meant better scales of pay for the Principals as well as the teachers concerned. The result was a remarkable proliferation of colleges which handled a large number of postgraduate students. Perhaps they handled more students at that level than the university departments did.

Gujarat also followed the same pattern with results that could have been more or less predicted. It goes to the credit of Gujarat University that in a major reversal of policy it has concentrated all postgraduate teaching under its own auspices. It was not an easy operation, nor was it free of political risks. But the University, with the firm and imaginative support of the UGC, has been able to carry through this policy and henceforth all postgraduate teaching will be centralised under the auspices of the University. In view of the fact that standards at the postgraduate level have been falling steeply, in recent years, this would have a good and chastening effect.

There are two morals to be drawn from this important development. One, where there is a will there is a way. Two, this new policy imposes an obligation upon the university to see that teachers engaged in postgraduate work till yesterday do remain fruitfully engaged.

—Anrilk Singh

Open University

R.K. Singh

In the field of higher education, we in India took our university models in the mid 19th century from Oxford, Cambridge and London, and established the first three universities at Calcutta, Bombay and Madras. More than 100 years ago the British universities started introducing a new dimension to their objectives, by taking the ivory tower to the market place. This 'extension' or 'extra mural' role as it was called, was in addition to the two traditional roles of teaching and research. However, Indian universities, including those newly established, have preferred to tread the beaten path. While some of them have not even perceived the new concept, others have taken too long to adopt themselves to the new challenges. Instead of becoming active instruments of social change, they appear to stand hypnotized by the traditional western university models they inherited. Change in the role of the university is now a worldwide phenomena, and these centres of higher learning are getting increasingly involved in programming for life-long learning, as also referred to by various writers as learning from 'Womb to Tomb', 'Cradle to the Grave', and so on. The models however differ.

One such innovation implemented in the UK, and taken up by some other universities of the world for experimentation is the idea of 'Open University'. Set up by a Royal Charter in July '69, the first course was started in 1971, and the first batch of students passed out in 1973. Its success story has made many in India clamour for such an institution to be established in the country. The aim of this article is to touch on some aspects of the working of the 'Open University', and assess its viability and suitability to Indian conditions.

Do we need an 'Open University' in India? Perhaps yes, perhaps not yet; but when the required technology and know-how is developed, we would need not only one in the country, but a minimum of one for each state, so that knowledge could be carried to every door-step. In order to study its relevance to higher education in India, we must keep in mind that the innovation is only about 5 years old. We do not have enough data and guidelines to conclude that the model is as suitable to us. Few other countries are already trying out this experiment with varying success, and have evolved their own models. It is important for us to look at all these variations to find their suitability, to our educational system. 'Open University' as it exists in the UK, requires a sophisticated system of communication technology, and setting up of a large number of study centres, well equipped with various learning media. Most

important consideration of course is the size of our country, as compared to the UK. The number of study centres, or academic outposts in the UK will be reaching the figure of 300 in the near future, and correspondingly India may require a few thousand such centres. Not having the capacity, the know-how and the technology, should we copy the UK model or innovate our own models, around the already developed concept of independent study.

Open University, also sometimes referred to as 'University of the Second Chance' or 'University of the Air', is meant for mature persons of over 21. This may now be reduced to 18 on an experimental basis from 1976. It does not have any academic entry of 'O' level or 'A' level schooling. Degrees are granted by accumulating course credits; six for a BA degree, and 8 for a BA (Hons), over any length of time but requiring 3-4 years study respectively. Initially, the main disciplines were, 'Arts', 'Social Sciences', 'Mathematics', and 'Sciences'. Two more, 'Technology' and 'Educational Study' were added later on. The University was designed to cater for approximately 40,000 students, but has the capacity for further expansion. Openness of the University lies in its open system of time of entry. Credit System of examination over any length of time, multi-media methods of imparting instructions and wide category of students from all walks, that it caters for. It has an Academic Advisory Committee and while planning new courses or evaluating existing programmes, other traditional universities are consulted.

Each year's course is of 34 weeks duration, with weekly 'correspondence units', weekly television and radio programmes. Each correspondence unit consists of a set of booklets, printed notes, educational tapes, explanatory notes for the TV and radio programmes, self testing exercises and assignments. Exercises and assignments are mailed by students to the tutors for corrections. For science courses special kits are despatched by mail for home experiments, wherever required. Few science experiments are also demonstrated on the educational channel of the TV. Writing of special booklets, preparation of TV and radio programmes in consultation with the BBC and packaging and despatch of literature and experimental kits involves tremendous academic and administrative work. Procedures are being gradually standardized and are yet to be perfected. Regional offices and study centres are well spread out throughout the country, where students, tutors and counselors meet each other to discuss their problems and lessons. In the first year of the establishment of the University there were 12 regional offices, each with a director for consultation, and 260 study centres employing almost 5000 part-time tutors, and counselors. Study centres are normally housed in existing institutions of higher education, with rooms for meetings and tutorials, fully equipped with slides, cassettes, tape recorders video tape projectors, TVs, radio sets and so on. In addition libraries containing

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complete sets of books and learning material are attached to each study centre. These are opened every evening for the local students where they can meet their counsellors once a fortnight, and their tutors once a week. During summer vacation special study programmes are arranged by providing additional staff at these centres.

Degree programmes through the Open University system is no doubt cheaper, than the traditional university courses. If it was only limited to correspondence media, perhaps it would be still cheaper, but with the personal contact programmes, network of regional offices, study centres, counsellor and tutors, it is becoming more and more expensive. Whether it will exceed the cost of traditional system as it gets more and more sophisticated, is still to be seen.

Innovations Elsewhere

In Sept. 1971, the USA which had borrowed ideas from the UK on adult-continuing education in late 19th century initiated another innovation called 'University Without Walls' (UWW). This system is also an improvement on the Correspondence Courses already being undertaken by a large number of traditional universities in the USA. UWW is in fact an Association of 20 colleges and universities, which has enrolled approximately 8000 students, ranging between the ages of 6 to 73. Graduate programmes (under-graduate in USA) tailored to the needs of students are offered by its member universities and colleges. Structure and role of each unit of UWW is devised by teams of students, faculty and administrators. Learning experiences like regular course work, internship, apprenticeship, field experience, independent study, individual and group project travel are being constantly experimented with. There is no prescribed curricula or uniform time schedule for completing a particular degree programme. It will be of interest to watch future trends, in this American model of an Open system of university education.

Other countries like USSR, Japan, Germany, Yugoslavia and Australia are also experimenting with the idea of the Open University. Most of them already have correspondence courses being offered by a number of their universities. USSR has one of the largest programme of correspondence courses for school and university degrees. Subjects like humanities, social sciences, science, medicine, engineering, technology, law and agriculture are all offered through correspondence. These were started in 1918, in order to universalize education and meet the shortage of teachers. Correspondence courses and evening colleges cover the whole country, with 41% student population enrolled for correspondence courses alone. There are 500 departments of correspondence courses in various institutions and universities, and 16 autonomous institutes of correspondence education. The latter could possibly be compared to the system of open university of the UK. Standards of education of day universities, evening

institutes and correspondence courses in the USSR are the same, with common entrance examinations common degrees and very often, common staff. Students are allowed to interchange between the three streams, corresponding to the field in which they are working and learning.

Implications

- (a) Course programmes so far offered by the Open University in the UK are confined to graduate (BA or BSc) degree programmes. Future trends may indicate increasing choice of subjects and perhaps a move towards professional courses, or courses at post-graduate level. With the increasing number of art and science graduates, UK could possibly face a serious problem of degree-holders unemployment.
- (b) Objective of democratization of higher education still remains to be achieved as a large number of semiskilled and unskilled labour are not interested in university degrees. What they need more are utility and vocational courses and programmes for better living. These aspects are now being undertaken by other institutions rather than the universities. The Open University therefore does not yet cater for the needs of about 35 percent of its adult population.
- (c) Teaching through correspondence and a few contact programmes does not do full justice to the teaching-learning process. Unless communication technology in a country is well developed, high standard of teaching cannot be achieved in the field of Independent study.
- (d) Country must have a stable socio-economic structure, and not ridden with strikes and lock-outs in its communication system, so essential for the working of Open University.
- (e) A well trained cadre of directors, counsellors, and tutors, who could organise study centres, prepare lessons, and introduce modern learning techniques, is an essential prerequisite for an Open University.
- (f) The area covered by an Open University is limited by the range of TV Centre, radio station and the distances will determine the number of regional offices and study centres.

Suitability for Indian Conditions

Considering the above factors, suitability of an Open University of the UK model in India is debatable. Unless the concept is modified, it appears to be only a 'blow up' of the department or school of correspondence courses. There are 16 universities in India who offer correspondence programmes in BA, B.Com, BEd and a few diploma or postgraduate courses. These courses are popular, whatever be the standard, since it is a question of demand and supply.

(Contd. on page 8)

Restructuring of University Examinations

V. Natarajan

Introduction

University examinations as they obtain now in various subjects both at undergraduate and postgraduate levels are usually of the traditional essay type (sometimes problem type) for 3 hours and a maximum of 100 marks. There are however exceptions to this at least in the marks allotted for a particular paper (varying from 100 to 200 marks). Very often the student is given a choice to answer 5 or 6 questions out of a total of 8 to 10 questions. They also involve students usually to write memorised answers to these stereotyped questions. Some universities¹ have already adopted in hard sciences in the last few years, a paper with Part A 30 Multiple Choice items and a Part B with 10 questions for students to choose 6 or so out of them. Yet others² have changed their traditional papers into those with many short answer and a few long answer questions with internal choice if any.

However these are few and far between. Most of the question papers of the traditional type are poor and inadequate samples of content and intellectual abilities in all these subjects. The result of all these is that :

- Our present examinations have very poor content validity.
- They have also very low reliability or consistency.
- They are unable to discriminate between higher ability and lower ability students.
- They encourage selective study.

Method of Restructuring

The core of examination reform in higher

education lies in the reform of questions/items, since no examination can be better than the individual questions of which it is composed. This really means that we reform the quality of our questions/items to satisfy many of the criteria of examinations like validity, reliability, objectivity and discrimination. A prerequisite to a paper design of question papers in addition to availability of a good number of good quality questions/items, is a restructured pattern of question papers which will provide for use of reformed questions/items.

In most of the universities, either the Boards of Studies or the Boards of Examiners make decisions about the pattern of their question papers. While some universities like Calicut which held systematic programmes for training members of Boards of Studies and paper setters, these have not been the case with a majority of our universities so much so most of them have not been able to change or restructure the pattern of question papers.

The Research Unit on Examinations of the Association of Indian Universities, early this year circulated to all universities, a suggested pattern of restructuring question papers at both undergraduate and postgraduate levels. Many universities have since adopted the pattern worked out by the Association as a consensus arising out of suggestions and modifications made by responding universities. The accepted pattern is given in Table I below for undergraduate examinations and Table II for postgraduate examinations for both semester and non semester examinations.

TABLE I

S.No.	Subjects	Pattern of Paper				Remarks
		Type	No. of Questions	Marks	Time	
1	2	3	4	5	6	7
1.	Hindi	Essay	1	20	30 min.	Internal Choice
		Short Answer	20	60	120 "	No Choice
		Multiple Choice	20	20	30 "	No Choice
2.	Other Languages	Essay	2	30	60 "	Int. Choice
		Short Answer	15	50	120 "	No Choice
		Multiple Choice	20	20	30 "	No Choice
3.	English	Essay	2	30	60 "	Int. Choice
		Short Answer	6	30	40 "	No Choice
		Short Answer	10	20	40 "	No Choice
		Multiple Choice	20	20	30 "	No Choice
4.	Mathematics	Long Ans.	2	30	40 "	Int. Choice
		Short Ans.	20	50	120 "	No Choice
		Multiple Ans.	20	20	20 "	No Choice
5.	Physics	Long Ans.	1	20	30 "	Int. Choice
		Short Ans.	20	60	120 "	No Choice
		Multiple Choice	20	20	30 "	No Choice
6.	Chemistry	Long Ans.	1	20	30 "	Int. Choice
		Short Ans.	20	60	120 "	No Choice
		Multiple Choice	20	20	30 "	No Choice
7.	Botany	Long Ans.	1	20	40 "	Int. Choice
		Short Ans.	20	60	120 "	No Choice
		Multiple Choice	20	20	20 "	No Choice

1. Omania, Andhra, Madurai, Kalyani

2. Calicut, Mysore, Gauhati, Rajasthan

1	2	3	4	5	6	7
8. Zoology	Long Ans.	1	20	40	min.	Int. Choice
	Short Ans.	20	60	120	"	No Choice
	Multiple Choice	20	20	20	"	No Choice
9. History	Long Ans.					
	Essays	2	40	60	"	Int. Choice
	Map Ques.	1	10	10	"	No Choice
	Short Ans. Ques.	30	30	90	"	No Choice
	Multiple Choice	20	20	20	"	No Choice
10. Geography	Long Ans.					
	Essays	2	30	60	"	Int. Choice
	Short Ans.	20	50	100	"	No Choice
	Multiple Ans.	20	20	20	"	No Choice
11. Psychology	Long Ans.					
	Essays	1	20	30	"	Int. Choice
	Short Ans.	20	60	120	"	No Choice
	Multiple Choice	20	20	20	"	No Choice
12. Commerce	Long Ans.					
	Essays	2	30	60	"	Int. Choice
	Short Ans.	20	60	120	"	No Choice
	Multiple Choice	20	20	20	"	No Choice
13. Economics	Long Ans.					
	Essays	1	20	40	"	Int. Choice
	Short Ans.	20	50	110	"	No Choice
	Multiple Choice	30	30	30	"	No Choice

TABLE II

S.No	Subject	Type	Pattern Details			Remarks
			No. of Questions	Marks	Time	
1. English & Languages (M.A.)	Long Ans. Essays	3	45	90	Min.	Int. Choice
	Short Ans.	10	40	75	"	No Choice
	Multi. Ch.	15	15	15	"	No Choice
2. Mathematics (M.Sc.)	Long Ans.					
	Essays	2	40	60	"	Int. Choice
	Short Ans.					
	Questions	10	40	90	"	No Choice
	Multi. Choice	20	20	30	"	No Choice
3. Physics (M.Sc.)	Long Ans.					
	Questions	2	30	60	"	Int. Choice
	Short Ans.					
	Questions	10	50	100	"	No Choice
	Multi. Choice	20	20	20	"	No Choice
4. Chemistry (M.Sc.)	Long Ans.					
	Questions	1	20	30	"	Int. Choice
	Short Ans.	20	60	120	"	No Choice
	Multi. Choice	20	20	30	"	No Choice
5. Botany (M.Sc.)	Long Ans.	1	25	45	"	Int. Choice
	Short Ans.	20	60	115	"	No Choice
	Multi. Choice	15	15	20	"	No Choice
6. Zoology (M.Sc.)	Long Ans.	1	25	45	"	Int. Choice
	Short Ans.	20	60	115	"	No Choice
	Multi. Choice	15	15	20	"	No Choice
7. History (M.A.)	Long Ans.	3	60	90	"	Int. Choice
	Short Ans.	10	40	90	"	No Choice
8. Geography (M.A.)	Long Ans.	3	60	90	"	Int. Choice
	Short Ans.	10	40	90	"	No Choice
9. Economics	Long Ans.	2	60	80	"	Int. Choice
	Short Ans.	20	80	90	"	No Choice
	M.C. Ques.	10	10	10	"	No Choice
10. Commerce	Long Ans.	3	45	90	"	Int. Choice
	Short Ans.	15	45	75	"	No Choice
	Multi. Choice	10	10	15	"	No Choice

Some universities in their anxiety to make a uniform pattern for all subjects at UG/PG levels have come out with

Part I	25%
Part II	25%
Part III	50%

Part I : Short answer questions, multiple choice, completion simple question.

Part II : Medium length answer questions.

Part III : Long answer questions.

It is however felt that within a rigid framework of Part I, Part II and Part III devoted to Multiple Choice, Short answer and Long answer questions, there should be 'flexibility' for different Boards in different subjects to have their own design keeping in view the nature of content and objectives of courses.

An important feature of such a pattern is that compared to present practice, it increases the number of questions to be answered by students quite significantly. With forty odd questions, it is possible to cover the syllabus adequately and to include all the important objectives which is simply not possible when students answer only five or six questions. The general recommendation is that short answer question and multiple choice items be used in substantial number with a trend towards increasing their use as time goes on and that essay questions be used sparingly. Long answer questions are useful when the aim is to test the ability of students to develop an argument or a sequence of ideas and to express their ideas in appropriate language. Their use is indicated particularly in language examinations but even there they should not be over used. For most purposes, other types are more efficient.

And with language answers, it is difficult to achieve reliable marking.

The reformed pattern will :

- (a) provide for high content validity,
- (b) include a majority of questions the answers to which can be reliably marked,
- (c) be fair since choice is allowed only in essay questions (that too internal) and no choice for Multiple Choice and Short Answer type questions,
- (d) discourage selective study,
- (e) provide for better discrimination.

It is hoped that all universities in India will seriously think about restructuring their question papers which is the first but definite step toward bringing reforms of the system of examinations. ●

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Open University

(Contd. from P. 5)

So long people are crazy after degrees, quality of instructions is immaterial to them. General criteria of judging popularity is the increasing figure of enrolment and therefore quality and use of better media of instruction is hardly of any consideration. Very little use of radio or TV has been made by the universities for correspondence study. If they have not even utilized the media that is available, what chances there are, of its being used if there were an Open University.

Our study centres for contact programmes consist of a few classrooms offered by another university, with no other instructional facilities but the teachers, chalk and the blackboard. Students are encouraged to enrol by all correspondence units from remotest parts of the country. It is a wonder how any of the innovations of Open University are expected to be made use of by the degree seeker, sitting more than 1000 miles away from their alma maters. Thousands of those enrolled for correspondence courses are getting degrees, never having set foot in a university, a study centre or having ever met their tutors throughout the course.

We do not need to impress anyone by showing an upward trend in enrolment, but think of quality and relevance. Our correspondence programmes could be improved by substituting ordinary degree programmes with professional, vocational and job or production oriented courses. UK may be needing more Arts and Science graduates but certainly not India at the present juncture. It is aimless to keep on adding to the number of unemployed art and science graduates if we cannot employ them. What is required is that the media of radio and TV should be fully exploited by the Schools and Directorates of Correspondence Courses. We should be in a position to establish a very large number of fully equipped study centres, with well trained counsellor and

tutor. Once these facilities are available we may be ready to launch our first Open University.

Our concept of Open University needs to be different. What we really need today is a seat of higher learning entirely for the adults. It should offer courses and programmes to suit the convenience of grown-up people with jobs and families. Degrees may be offered in traditional subjects, as well as in subjects related to life. Such a university may be named an 'Open University', 'University for Adults', 'Peoples' University' or 'Androgogic University'. Enrolment should be confined to those over 21 years of age, belonging to the adult groups like doctors, engineers, lawyers, teachers, business executives, government employees, armed forces, police personnel, youth leaders, social workers, legislators, retired persons, housewives, farmers, industrial workers or any other identifiable groups. The courses should be run at the University as well as through correspondence.

Aim of this university will be to:

- (a) offer degree or diploma correspondence courses in a wide range of subjects in liberal education or for professional and vocational advancement;
- (b) offer evening courses for adults for degrees and diplomas;
- (c) offer short part time professional and vocational courses, summer institutes, conferences, seminars, workshops, community extension and other self-enrichment programmes;
- (d) develop Adult Education as a discipline to train adult educators, counsellors and administrators;
- (e) conduct research in Adult/Continuing Education.

Role of Farm Universities

A. S. Kablon

In the modern world with its increasing dependence on science and technology and the developing countries' heavy dependence on agriculture, agricultural universities have become the focus of rural aspirations in India.

The farmers call these universities as their own. The way the farmers have identified themselves with Punjab Agricultural University is a measure of the role of an agricultural university in agricultural development of the country. It is also common knowledge that PAU has played a key role in the Green Revolution which has made Punjab the bread basket of India.

The agricultural universities have an edge over those institutions where education is not immediately related to real life and to the solution of agricultural and socio-economic problems of the countryside. Here in the agricultural universities a student knows right from the beginning what job he is going to do after finishing his educational career.

The professional education in these universities is oriented right from the beginning to this job specification.

Education for agriculture in these universities is based on scientific concepts. The students are first introduced to the fundamental areas of learning. The humanities are introduced to advance the frontiers of knowledge in all the areas of human concern. Thus a solid foundation is laid by giving a proper place to teaching of basic sciences and the humanities. This emphasis comes from the experience of the land grant institutions which emphasize that "inherent in the revolution brought about by the Land Grant Act of the U.S. was the close interplay and the association between the basic sciences and applied sciences, which created a new vigour in agricultural education and resulted in stimulation of agricultural research and technology".

In the development of human resources, the organization of the agricultural university permits great flexibility in resident instructions—the courses, and curriculum. The curriculum is designed on the basis that a system of higher education, if it is to succeed, must keep in step with the advances in agricultural sciences in the world and should promote inter-disciplinary teaching and research.

This is made possible without much of a time lag because of the organisational set up of the Board of Studies in each constituent college and the Academic Council at the university level, which meets at least once a month to discuss the new educational programmes of the University.

Flexibility

A sound educational policy must promote inter-disciplinary teaching and research without which

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complex problems of agricultural development could not be solved. What is, perhaps, the best in the organization of agricultural universities is a system of constituent colleges (unlike the affiliated colleges) which permits each student irrespective of the college to which he is admitted to receive instructions from all the constituent colleges of the agricultural university and particularly from the college of Basic Sciences and Humanities.

There is no other university in the country which provides so much flexibility in the organization of its courses/curricula which expose a student to such areas and diverse subjects as Punjab Agricultural University.

Any system of education, which does not keep both the teachers and the students on their toes, is not good enough for developing societies. The trimester system, on which most of the agricultural universities operate, moves fast enough to get the student going and cultivates in him an attitude for regular hard work on a continuing basis. It is the cultivation of this attitude in the student which is really important for the rapid growth of the developing countries.

It is not merely the pursuit of "disinterested knowledge towards which we are dedicated, but a new pattern of education on rural life, where teaching is research oriented, research is problem oriented and extension education broad based and scientific."

This integration can be made most effective through symbiotic development of teaching, research and extension education. Unless a teacher is involved in research and has done some extension work, his teaching does not become effective and purposeful. Development oriented education cannot be made effective unless teaching, research and extension education programmes are closely integrated at least in institutions of higher learning.

With all the emphasis and focus coming on agricultural education in the agricultural universities, it should never be forgotten that there is a culture besides agriculture which must be fostered by all the universities and with greater vigour in agricultural universities. This is a culture of pragmatic and scientific value systems which are the sheet anchor of any society.

Extension Schemes

A university should stand for search of truth for adventure of ideas and for humanism. An agricultural university must foster these values in the cultural matrix of the rural society so that its product can fully identify the problem areas of rural societies which are not just technological but are mostly erosion of value system and a crisis of character which has not only corroded the urban people but have also conta-

minated the rural folks in the countryside.

The structure of an agricultural university is such that it is best equipped through its extension education programmes to be able to reduce economic, social and cultural differences by the diffusion of technology at the level of small-marginal farmers, agricultural labourers and artisans.

I would even venture to suggest that to overcome the explosion of population, family planning should be made an integral part of extension education in agricultural universities. This can work out much better as a complete package of technological and cultural practices to be extended to the farmers. The farmer is more likely to listen to the extension man who provides him this complete bundle of services than to an outsider.

The University Education Commission had observed in 1948 that the "separation of the skill of hands from the skill of the mind has greatly retarded the mastery of the physical world and has been a major cause of poverty" in India. A conspicuous feature of agricultural universities is their emphasis on field work.

Today, agricultural education has much more relevance to the needs of the society to which it provides intellectual stimulus and professional manpower with a bias for solving practical problems of agricultural industry.

To achieve this objective, work experience forms an integral part at all levels of education in agricultural universities. In addition to practical work attached with each unit of course a block of time is allocated on Saturdays every week for practical work and an acre of land is allotted to a group of 4 students to manage all phases of production and marketing on these units of land and earn while they learn.

Self-employment

One of the greatest failures of the universities in India is their incapacity to prepare the student for self-employment. Almost all the students produced by these universities would like to take up a white-collar job. It is highly important that the Indian universities should strive to cultivate such attitudes in their students which build up their confidence in the career of self-employment. This is what agricultural universities are set to achieve although following the opportunity cost principles not many students have gone back to farming business.

As Indian agriculture becomes more productive and progressive and the students trained in agriculture can make a better living from farming business, students trained in agricultural universities might develop preference for farming business.

Agricultural education can be further oriented to serve as an effective vehicle of agricultural progress and development and meet the needs of economic progress of the country. This can best be done by implementing the recommendations of the Education

Commission which wrote in 1948, "Among professions or branches of profession in the development of which rural universities may well participate are the phases of water control engineering, food products technology, 'chemurgo engineering' Ocean-Products technology, mineral processing, rural industrial counselling, rural public administration, rural social welfare, rural land and village planning, social engineering, rural sociology and anthropology, rural arts and rural medical services."

Many agricultural universities have not yet established strong faculties of Basic Sciences and Humanities, Social Sciences, Agricultural Engineering and Medicine. It is the integration of these various faculties which was visualised by the Commission as a real strength of the rural universities. Agricultural universities should therefore develop all these programmes so that they can make the maximum contribution to the rapid increase in the quantity and quality of agricultural production to outstrip population growth and thus improve the economic status of the rural folk. [Courtesy: *The Tribune*]

Quote—Unquote

— W. D. Miranshah

- "College Teaching By Television By John C Adams, etc. :

"It is hoped that the report of the conference will aid many who are considering the role of television in American education....."

—to create more confusion than already exists !

- S.L. Pressy : "For a number of years the writer has had it in mind that a single machine for automatic testing of intelligence was entirely within the realm of possibility."

—but it proved a tall dream !

- J.C. Peterson : "The study is an experimental investigation of the value of guidance....."

—so that teachers are properly misguided in believing it !

- James Kenneth Little : "The experimental study of the problems of college teaching is a development quite largely of the last decade....."

—and it is likely to be of the present !

- B.F. Skinner : "Some promising advances have recently been made in the field of learning...."

—even then, people refuse to believe it

National team to review farm universities programme

Mr. A.P. Shinde, Union Minister of State for Agriculture and Irrigation while addressing the tenth annual convocation of the Andhra Pradesh Agricultural University, announced that an Agricultural University Review Team is to be set up at the national level to assess the progress made by the agricultural universities. He said that each agricultural university should in the meantime carry out its own self-evaluation in advance to facilitate the national review.

The agricultural university movement had started about fifteen years ago and the time has now come to review the progress made by each of the agricultural universities, identify its handicaps they suffered from and take corrective measures to rectify their deficiencies. Mr. Shinde said that the agricultural universities in the country were much stronger than traditional agricultural colleges but a great deal remained to be achieved by way of high quality and relevant education. Practical training of the graduates is the weak link. The out-going graduates did not seem to have self-confidence to tackle the various field problems independently. Moreover they are ill-equipped for self-employment. This, he pointed out, might be due to the fact that sufficient emphasis has not been given to 'learning by doing'. Although the agricultural universities had been contemplating introduction of village-service-period in the first degree courses, by and large, this idea has not been implemented.

He said that agricultural education should be need-based and ecologically oriented. In the agricultural university system, the goal was to achieve close integration between research and education. It followed therefore that constituent colleges of

agricultural universities must simultaneously develop as strong centres of regional research. The worth of a constituent unit of the agricultural university system would be judged not by the number of graduates it produced but by its contribution through research to agricultural development in the area of its location. Development of sufficient research capability should therefore be the principal criterion for starting postgraduate courses. He suggested that the universities should undertake operational research project to find out the effectiveness of their recommendations under actual field conditions. The emphasis in research should shift to various facts of integrated rural development and development of crop-livestock-fish integrated systems of farming based on recycling principles. Attention should also be paid to energy conservation.

Elaborating the role of agricultural universities vis-a-vis the State Governments in agricultural development, Mr. Shinde suggested that there should be an apex body under the chairmanship of the Chief Minister in every State to coordinate the activities of the State departments and the agricultural universities. Also there should be industrial research body in each State responsible for all types of agricultural research.

VCs meet

A two-day conference of the Association of Vice-Chancellors of Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir and the Territory of Chandigarh was held at Palampur recently. The conference decided to form in each State an inter-university co-ordination body to make the best use of facilities and expertise available for coordinated development of academic programmes. A sub-committee was appointed to prepare syllabi for the +2 and +3

classes of the new pattern of education with specific stress on vocations befitting agro-climatic and the environments of the respective States. In the case of Himachal Pradesh, for instance, the stress would be on vocational training relating to forestry, agriculture and horticulture. A new subject of health education will be introduced in the courses of study for the BEd and JBT in these institutions. The seminar also wanted the code of conduct of teachers adopted by each university. The code should be reviewed and exchanged at the next conference of the Vice-Chancellors. It was also decided that there should be assessment committees in each university to assess the work of teachers before they are permitted to cross efficiency/assessment bar in the new UGC scales. The conference also decided to form co-ordination committees of experts in each university to review the research work being done in particular disciplines. Non-government colleges should appoint selection committees for various teaching personnel according to the revised procedure laid down by the UGC irrespective of the fact whether the new scales have or have not been given in these colleges.

Educational Research Centre to be set up at Jaipur

The first research and reference centre to streamline the general educational programmes and to make them more effective will be established in Jaipur. Through this centre, the adult education committee of the State proposes to make use of the general education programme to inculcate among the citizens a sense of commitment towards society along with understanding of rights of citizens so that they could play their role in building a democratic, secular and socialist society. The centre would prepare and publish books and other materials on the principles, objectives, training and direction to be given to the general education programmes.

Reconstituted SNIPES meet at Bombay

Mr. V.C. Shukla, Union Minister for Information and Broadcasting is the new Chairman of the Board of reconstituted Society for the National Institutes of Physical Education in Sports (SNIPES). The two-day meeting of the Society held in Bombay recently considered various measures for the preparations for the forthcoming international sports events, notably 1978 Asian Games, 1978 World Hockey Cup, 1980 Olympics and 1982 Asian Games to be hosted by India. The meeting urged upon the Government to lay at least a tartan track in the main stadium at Delhi, where the 1982 Asian Games would be held. The Board sought the Government sanction for foreign exchange to import electronic devices like score boards, photo-finish cameras, clocks, fibre glass poles, javelins and volleyballs.

The Government has also been requested to increase the sports talent scholarships. It was recommended that payments be made to the selected students from the beginning of the next academic session. The other major decisions arrived at the meeting were :

International events : Preparation for the 1978 Asian Games, World Cup Hockey Tournament, 1980 Moscow Olympics and 1982 Asian Games at Delhi should begin forthwith and the government be requested to design and construct the national sports complex as early as possible.

Sports consciousness : The assistance of the television, All-India Radio and the Films Division should be taken; pamphlets and chart should be distributed and special documentaries produced.

Coaching : Under Indo-GDR exchange programme (1977-78)

six scholarships—two in swimming, one each in track and fields events, gymnastics, training methods and pedagogy—will be availed of. The national coaching scheme will be revitalised and the service of the coaches should be utilised for all olympics events, kabaddi and kho-kho.

A coaching committee will see that the regional centres run in collaboration with the state sports councils are more active. Cricket and Tennis will receive no funds for their scheme since these two federations have enough financial resources.

Foreign coaches for swimming (from GDR or Australia), Volley ball (USSR or Japan), Football (GDR or Poland), Basketball (USSR or Yugoslavia), Wrestling (USSR or Hungary) and Weightlifting (Poland) should be requisitioned.

The British Council which had offered a cricket coach may be requested to send a football coach instead. There was scope for improvement in the quality of coaches produced by the NIS and the assistance of the Defence Services psychological research wing should be availed of so that those who are admitted have leadership qualities to motivate youngsters besides possessing aptitude and the background.

Employment opportunities : Public sector undertakings should provide jobs to outstanding sportsmen and given facilities to train for international events and those granted leave for attending camps should be treated as on duty.

Officiating standards : The existing standards in umpiring, judging and refereeing are low and the national federations should give greater emphasis on this aspect. Qualified coaches should be provided facilities to qualify as officials. With the help of the NIS and experts sponsored by international bodies, clinics for officials should be held.

Qualified coaches working under the national coaching schemes or those employed by States Sports Councils and Universities should also be afforded facilities to qualify as umpires, referees and judges.

Dialogue with federations : A study group should have discussions with national federations for development of games and a special cell of the NIS will help the federations in training teams for international contests.

UGC housing plan for new jobs

The University Grants Commission has decided to provide financial assistance to meet 50 per cent of the cost of faculty housing scheme for the benefit of university teachers, in case the State Governments also agreed to bear the remaining 50 per cent expenditure or asked any of the agencies like HUDCO and LIC to bear its share. During the Fifth Plan period the Commission would help the universities create about 1800 senior teaching posts of Professors and Readers and 900 posts of Lecturers in universities and postgraduate centres. The faculty improvement programme of the Commission is designed to provide in-service facilities to teachers to help them acquire more knowledge through further study and research.

The Commission is also considering a proposal to set up a separate fund from the rental income of houses constructed with its assistance. This money can be ploughed back into further development of housing facilities. The Commission would also provide different types of accommodation for teachers working under the faculty improvement programme. This residential complex would also include facilities for organising conferences and seminars. These are to be used exclusively for the visiting faculties. It is expected that about Rupees four crores will be required for the construction of suites for this purpose. The assistance in this case will be on cent percent basis.

Science academies symposium on scientific publications

A two-day symposium on the quality of scientific publications in India was organised by the three science academies—the Indian National Science Academy, New Delhi; the Indian Academy of Sciences, Bangalore and the National Academy of Sciences, Allahabad—has recommended the formulation of a national publication policy for scientific publications in the country. The symposium was attended by a large number of scientists, editors of science publications and those who have had experience of production of scientific publications.

The main objective of the symposium was to take stock of the present status of our scientific publications (journals, books, etc.) and to consider ways of improving their standard. The sessions of the symposium were chaired by Professor R.C. Mehrotra, Vice-Chancellor, University of Delhi, Dr. A.R. Kidwai, Chairman, Union Public Service Commission, New Delhi and Dr. O.P. Gautam, Deputy Director-General (Education), Indian Council of Agricultural Research. The participants discussed at length various aspects of scientific publications such as quality of scientific content, writing, editing, refereeing, printing and production.

The following recommendations were made at the plenary session :

Since there is a very large body of active scientists in this country and there is also a very large number of scientific publications the conference was of the opinion that immediate and major steps should be taken to improve the quality of publications—journals, books and specialist reports—in order that the publications of this country may make an impact in the scientific world. It was felt that at present this was not the case and therefore, many Indian scientists sent their best work for publication in journals abroad.

In order to achieve this, the conference felt that a national publication policy for scientific publications be formulated. This should be done by representatives from Academies and learned bodies and other organisations interested in the promotion of scientific publications. This committee should examine various facets related to the improvement of the quality of scientific publications in India including the quality of scientific content, presentation, rapidity of publication, conciseness, refereeing, editing, printing and production.

Since scientific journals are particularly important for research, special attention should be paid to producing high quality scientific journals. Unless such efforts are made, Indian scientists cannot be persuaded to send the best papers to Indian journals. It may, therefore, be worthwhile examining the question of producing at least one major journal in each area of specialisation. The Academies should initiate immediately necessary action in this direction.

The conference felt that there was little effort in publishing reviews, annual reports, monographs, periodical reports in different areas of specialisation. These play a vital role in enabling scientist to keep abreast of the latest developments.

The conference felt that there was a definite need for journals publishing quick preliminary communications, while strengthening some of the existing journals of this kind, it may be necessary to start a few such new journals in various areas. Such journals could only succeed if rapidity of publication is always ensured. Such publications are likely to encourage Indian scientists to publish most of their work at least in the preliminary form in these journals.

Encouragement must be given to the writing of reviews and

monographs on scientific topics of use in the Indian context. Publication of textbooks for teaching in colleges and universities and in the production of advanced textbooks and reference books need to be given further support.

Improvement in scientific writing and editing can possibly be brought about by introducing special courses and training schools.

The conference felt that a great deal of care has to be taken in the production of scientific publications and a Group should be set up to formulate guidelines for scientific writing and publication.

One of the serious drawbacks of scientific publications in India is the lack of adequate printing facilities at reasonable rates. A Group should be set up to look into as to how this situation can be alleviated. The possibility of subsidising printing and, if necessary, setting up of printing facilities should be looked into.

The Academies should look into the question of whether there is need for a new journal which they would jointly sponsor to look after new areas and borderline areas in research.

Vaccine to tackle sheep rot

Dr. D.N. Dhar and Dr. H.C. Tiwari of the Indian Veterinary Research Institute using gamma rays produced for the first time in Asia a parasitic vaccine which could save hundreds of thousands of sheep from a lingering death. Dr. Dhar has made extensive field trails in Kashmir. Vaccine against lungworm has become the standard safeguard for sheep, much like vaccine against smallpox for humans. The Bhabha Atomic Research Centre, Trombay, supplied and installed the cobalt-60 gamma chamber for making the vaccine. Several African countries have placed orders through FAO for this new vaccine. Two doses of vaccine are given to each animal at an interval of one month. Animals are vaccinated when they remain immune to the disease throughout their life.

UGC norms for backward areas

Prof. Satish Chandra, Chairman, University Grants Commission, said in Bhubaneswar that the Commission would relax the rules for issue of grants to colleges located in backward areas. The Commission has sanctioned Rs. five lakhs to college located in backward areas where even minimum enrolment in degree classes was 270 and permanent staff consisted of fifteen teachers. In Orissa, since many colleges could qualify for this the UGC has decided to relax the rules. The universities in Orissa will choose two colleges in each district which have a preponderance of scheduled castes and scheduled tribes and recommend them to the Commission for suitable grant. The Commission has also decided to select one college in each district which will be given a grant of more than five lakhs for improving the standards of education. In these two schemes preference would be given to some women colleges. The UGC was keen on academic reforms in universities and was even prepared to help the less developed universities since it was responsible for the maintenance of educational standards at the university level.

Mathematical Research Centre for Pune

A national centre for studies and research in pure mathematics has been launched through the initiative of Dr. Shriram Shankar Abhyankar, distinguished professor in Purdue University in the United States. The foundation in Pune has been named after 'Bhaskaracharya', the last Indian eminent mathematician of the early twelfth century. It aims at establishing a full-fledged institute for graduate and post-doctoral studies with twenty professors and other ancillary staff. The recurring expenses over and above the initial expenditure for capital costs and outlay would be about Rupees fifteen lakhs. The centre would be the first of its kind and many universities in India have welcomed its concept. The lack

of full-fledged research and studies of pure mathematics in some of the universities was hampering the talent of young students which indirectly affected the applied aspects of mathematical approach to various other disciplines.

Forthcoming seminar on Exploration Geophysics

The Association of Exploration Geophysicists would be conducting a seminar in Hyderabad from February 3 to 5, 1977 on Exploration Geophysics in India. Apart from Geophysical Technology, Data Processing and Interpretation, a number of case histories on Geophysical Exploration would be discussed. The abstracts of scientific papers have been invited by the General-Secretary of the Association up to November 30, 1976.

New assignment for Dr. Rajni Kothari

Dr. Rajni Kothari would soon take up the newly established Chair at the Columbia University's School of International Affairs in USA. Dr. Kothari is the Director and Senior Fellow of Delhi Centre for the Study of Developing Societies founded in 1963 and would be the first Indian social scientist to occupy the chair. This department will focus attention on the need to develop societies which will pursue inter-related values of peace, economic well-being, social justice and ecological stability.

Handiqui's generous donation to Gauhati Varsity

Prof. Krishnakant Handiqui has presented a sum of Rupees one lakh ten thousand as a donation to the Chandrakanta Abhidhan Publication Fund of the Gauhati University. With the money already available in the Publication Fund this munificence will go to finance the printing and publication of the third edition of the Adhidhan now being edited with the help of Dr. Maheswar Neog as Chief Editor and Dr. Upendranath Goswami as Assistant Editor.

Prof. Handiqui has shown further his willingness to make

his share of provision for future editions of this standard lexicon originally prepared under the auspices of the Assam Sahitya Sabha. At present about 3000 copies can be printed of the granth. The university has therefore requested the central government for additional grant so that at least 10,000 copies of Abhidhan may be printed.

Andhra college service commission

The Andhra Pradesh Government is expected to constitute a college service commission which would function as a central recruitment agency for all the teaching posts in the affiliated colleges. The proposed commission would devise its own methods of recruitment and those selected would be paid revised University Grants Commission's pay scales. The commission is likely to consist of eminent academicians, vice-chancellors, educationists and education administrators. Pending constitution of this commission, the Government has asked the college managements to take candidates recommended by a selection committee consisting of representatives of managements, the university to which the colleges are affiliated and the Director of Higher Education. The private managements have been prohibited from recruiting teachers through their own selection committees.

INSA elections

At the annual general meeting of the Indian National Science Academy held recently Dr. R. Ramanna, Director, Bhabha Atomic Research Centre and Professor, Tata Institute of Fundamental Research, Bombay, was elected President of the Academy. Prof. R.C. Mehrotra, Vice-Chancellor, University of Delhi, and Prof. A.K. Sharma, Head of the Department of Botany, University of Calcutta, were elected as Vice-Presidents. Dr. M.L. Dhar, Ex-Director, of Central Drug Research Institute, Lucknow, was elected as the Treasurer. Dr. A.R. Verma, Director, National Physical

Laboratory was elected as Foreign Secretary. Dr. M.G. Deo, Professor of Pathology, All-India Institute of Medical Sciences, New Delhi and Prof. A.N. Mitra, Department of Physics and Astrophysics, Delhi University were elected as the Secretaries. Prof. L.S. Kothari, Head of the Department of Physics and Astrophysics, University of Delhi and Prof. K.N. Saxena, Head of the Department of Zoology, University of Delhi continue to be the Editors.

Sports complex suggested for universities

A seminar on physical education and development of sports was held at Nagpur recently. It was recommended that the each Indian University besides establishing coaching institutions should also set up sports complex of international standard in the interest of sport activities. It was also suggested that the Factories Act should be amended to appoint sports officer in every establishment having more than five hundred workers. The seminar was in favour of utilising existing facilities rather than constructing new stadia on a rational basis. It called for institutional arrangements for selection of talents at various levels and strengthening of training institutions in physical education to provide adequate facilities for training teachers and sports officers.

IAS coaching centre for Tamil Nadu

The Tamil Nadu Government has selected Tiruchirappalli for conducting a special course of lectures for the benefit of candidates appearing for the IAS and other competitive examinations of the UPSC. About sixty lectures on different topics will be delivered by experienced university and college teachers on compulsory and optional subjects. The Director of the Collegiate Education would be organising these lectures. The scheme is likely to help candidates from Tamil Nadu to fair better in the IAS group of examinations. The guest lecturers are expected to be drawn up from different places and

would be defrayed their travelling expenses in the form of an honorarium.

Pakistan's Open University

The Peoples' Open University in Pakistan which was set up in 1974 is to be further developed to help in reducing the country's rate of illiteracy. The courses produced by the open university will be mainly vocational to give instructions in such basic subjects as poultry farming, sugarcane cultivation, nutrition and languages at the university level. The plan is to make full use of the integrated distance teaching system of Britain's Open University which combines written material, television and radio programmes with face-to-face tuition at study centres and summer schools. The distance teaching programme under learning distribution system reaches the mass audience spreading limited academic resources across a large population. The system is to be further developed and the Pakistan Government proposes to invite experts from Britain's Open University to help the further designing and restructuring of its courses.

Shukla to meet Heads of Journalism Departments

Mr V.C. Shukla, Minister of State for Information and Broadcasting would be convening a meeting of the Heads of the University Departments of Journalism to discuss the difficulties of the departments in the finding out areas for extension of the scope on training in journalism. It has been felt that in the light of the new dimensions proposed at the recent Colombo non-aligned summit in the field of news there was enough scope for the growth of university departments of journalism. To start a career in journalism one should have a professional degree just as in medicine, engineering or law for that purpose.

Ion microscope

The Bhabha Atomic Research Centre in Trombay has been successful in developing a field ion microscope incorporating a channel electron multiplier array.

The instrument would enable the viewing of individual atoms of materials and is a big step in the field of nuclear technology. The instrument would magnify about a million times and is capable of projecting the image of the lattice atoms of single crystal. This would further enable the study of technologically important metals and alloys like iron, steel, aluminium, copper, titanium, zirconium, etc.

Uniform course in Ayurveda

Dr. P.N.V. Kurup, Adviser to the Union Health Ministry on the indigenous system of medicine, said in Jamnagar that from 1977 academic year there would be only one uniform course in Ayurveda for the entire country. At the end of five-year course students would be awarded BAMS degree on the lines of the MBBS degree of medical colleges. At present about 50 different certificate and degree courses in Ayurveda are being offered in the country's 100-odd ayurvedic colleges. All these courses are proposed to be abolished by an enactment and would be replaced by one single unified BAMS course. A central ayurvedic pharmacy would also be set up at an approximate cost of Rs. 15 lakhs.

Soil monitoring by universities

Dr. M.S. Swaminathan, Director-General, Indian Council of Agricultural Research, has suggested a programme of soil health monitoring for the agricultural universities. The programme would provide advance information for developing research and extension programme throughout the country. All research and development programmes of the Government of India, he said, were designed to improve the productivity in the country. The monitoring system in various disciplines would not only help the researchers in several aspects but would also help evolve methods of fortification of the various components of agricultural programmes with reference to the objective and the end product.

Patna seminar on curriculum redesigning

A national seminar on 'curriculum redesigning: a job-orientation approach' was organised by the Applied Economics and Commerce Department of Patna University. Dr. Ram Raj Prasad Singh, State Education Minister, in his inaugural address stressed the need for redesigning of the curriculum to suit the present-day needs of the society. He said that the curriculum should be changed in accordance with the changing social structure and need of the country. Our knowledge gets doubled in every ten years but our syllabi did not change at the same rate. For example, the syllabus of Economics in different universities has not been revised for the last forty years or so. He also said that more changes in curriculum would not solve problems unless the

shape to the education of economics but we have not been successful in this venture. He suggested that commerce teachers should visit industrial concerns at regular intervals to acquaint themselves with the latest developments in commerce and trade.

Prof. D.N. Sharma, Vice-Chancellor of Patna University in his welcome address said that the university Department of Commerce should work in close coordination with the various industrial concerns of the region in order to impart practical education to their students. He said that language was an important aspect of our education and it should be given a proper place in the changing curriculum. Dr. N.L. Nadda, Head of the Department of Applied Economics and Commerce was the Director of the seminar. He said that the seminar was being

functioning at Kothagudem, Bhiknoor and Ramagundem. At Kothagudem centre, courses leading to Master's degree in Geology, Mining, Mineralogy and Mineral Prospecting will be arranged. The Ramagundem centre has courses leading to Master's degree in Physics, the subjects being, Engineering Physics and Instrumentation. The Bhiknoor in Nizam district has courses leading to MSc in Agro-Chemicals, Insecticides and Pesticides.

Mr. Jaganmohan Reddy, Vice-Chancellor of the University, feels that the job-oriented courses would work in close liaison with the industry, the Singareni collieries and the Nizam Sugar Factory. The Mining Engineering College of the University has already been shifted and the first and second year courses are being held at Kothagudem. From the next year the third and fourth year courses would also be held there "right on the mines". The Singareni collieries have agreed to give equipment worth Rupees ten to twelve lakhs. They are also constructing a building to house the mining school there so that the postgraduate centre starts in a spacious campus. These job-oriented courses have tremendous potential and the students after completing these courses could also enrol for their Ph.D. degree. One of the innovations introduced in these courses is that for the first time in the country the management would be a part of the courses. In engineering courses it was also proposed to teach legal aspects like contracts etc.

The location of these centres in rural areas gives them a real rural-orientation apart from their being located in developmental areas. The curriculum for these courses have also been set after consulting experts from all over the country. The university proposes to start three postgraduate centres for Arts and would spend about Rupees two lakhs on each of them. Here also the university proposes to start job-oriented courses.

CAMPUS NEWS

method of teaching was also changed. After the publication of Kothari Commission Report in 1966, a new turn has been noticed in the educational pattern. The 10+2+3 system has been given a job-orientation bias to our educational pattern. Today, education is meant for social change and national reconstruction. We must revise our syllabi keeping in view the new aims and objectives of the changing pattern of education.

Dr. S.M. Tewari, Professor of Business Administration, Banaras Hindu University, presided over the function. In his address he maintained that the redesigning of the curriculum was only one aspect of good education. What is more important is to bring about changes in the attitude of teachers and students. The development of commerce education in India had been very irregular. Commerce education was started to give a practical

organised in the silver jubilee year of the faculty with the assistance of the University Grants Commission. He said that apart from exploring new job opportunities available to commerce graduates and the re-fashioning of the courses, the seminar would also discuss about the introduction of practical training and its nature and duration, introduction of diploma course in commerce and promotion of research activities. The seminar would also make an effort to study the commerce curriculum at different levels in the light of the changing complexities of the business world and to suggest changes in new directions.

Osmania postgraduate centres

The three postgraduate centres of Osmania University offering job-oriented courses will start

Sugarbeet plant for Pantnagar

The Pantnagar Agricultural University would soon set up a sugarcane-cum-sugarbeet plant under its direct supervision and control. The plant will go a long way in developing the much needed sugarbeet industry in the country. The university is already growing sugarbeet extensively in its spacious farms. The entire project which will cost about Rs. nine crores is awaiting the clearance of the Union Government.

According to Dr. P. S. Bhatnagar, the Project Coordinator, this industry can bring about sugar revolution in the country. It can also bridge the gap between the present sugar production of 42.5 lakhs tonnes against the estimated national requirement of 60 lakhs tonnes by the end of the fifth plan. It would also enable the nation to earn precious foreign exchange. The existing sugar factories in private and cooperative sectors in different parts of the country can be easily converted into sugarcane-cum-sugarbeet factories by bringing about suitable modifications in the plants. Such conversion would however entail some additional investment but would be fully compensated in in the long run. There is enough scope to run such factories practically all round the year. By the time the sugarcane crushing was over sugarbeet would be available to the factories. The sugarbeet industry would also provide by-products like beet pulp and beet molasses which has higher chemical content and the nutritive cattle feed can also be produced extensively as a bye-product.

Delhi plans to reorient science courses

Delhi University is planning to overhaul science courses both at the undergraduate as well as postgraduate levels. Prof. R.C. Mehrotra, Vice-Chancellor of the University has constituted an advisory committee from the various departments of science. Prof. I.P. Singh, Dean of Science

Faculty, is the Chairman of this group.

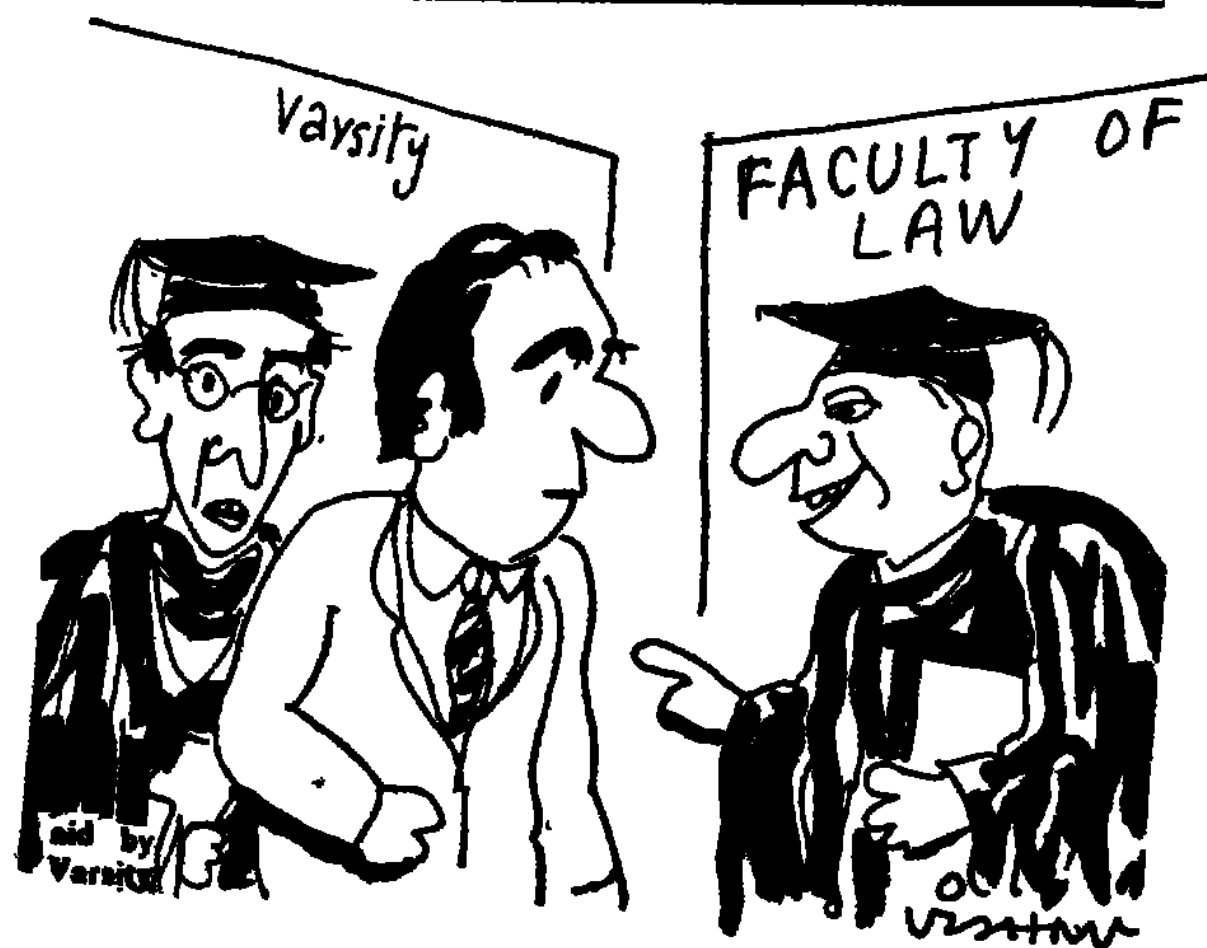
New job-oriented courses may be introduced at the B.Sc. general level and a new inter-disciplinary approach tried at the BSc honours and postgraduate levels. It is also proposed to introduce unit courses and to teach science as science is today.

Prof. R.C. Mehrotra feels that with the introduction of 10+2+3 scheme in the university it was time that all courses were overhauled. Pre-medical courses might be covered at the secondary stage and in that event the university would like to offer in its place job-oriented courses to replace the present BSc general course. Special courses for students who may like to become laboratory assistants or medical representatives are also to be examined. Meanwhile the honours and postgraduate courses are to be upgraded. All these changes may entail a wide-ranging reorganisation of departments along with the rational lines and introduction of new link courses in keeping with the rapid development in certain fields of science.

The blueprint is expected to be ready by March. In another six months time, the Board of Studies, the Academic Council and other university bodies would be able to discuss the new courses before their introduction from the next session.

Activities of NEHU's Continuing Education Deptt.

The Department of Continuing Education, North-Eastern Hill University, Shillong, planned a number of programmes and seminars during the course of the year. A six-week course in tourism was arranged for the benefit of tourist guide and other personnel working in the tourist and information departments of the north-eastern States. The course in health development is also being planned for the teachers and medico-social workers of the region. The Central Health Education Bureau and National Institute of Health Administration and Education have agreed to give necessary financial assistance. The Health Department of the Government of Meghalaya has also promised all financial



"By giving free legal aid to students who are denied admission here, our unemployed law graduates get a chance to keep in touch with their subject....."

assistance.

Extension lectures in Khasi language teaching for the benefit of BT and BEd teachers are also proposed to be arranged. An elementary course in Khasi language for the benefit of university teachers and staff is also being arranged. A seminar on legal aid to the poor was jointly convened by the department and the Shillong Bar Association during May 1976. Eminent jurists and advocates attended the seminar. Subjects like the rationale of legal aid and advice and its organisation, clinical legal education, objectives, processes and techniques of law reforms were discussed. Amongst other things the seminar recommended the setting up of an expert body by the university to draw up a ten-year plan for the development of legal education and research in the north-eastern region and to consider the proposal for the establishment of a Centre for Study and Research in tribal laws. The department, in collaboration with the History department, has initiated a series of lectures on the History, Institutions and Culture of North-Eastern India. Of the twelve lectures proposed, four have already been delivered and regional seminar on People and Forests is also proposed to be held in collaboration with the Meghalaya unit of the Himalaya Seva Sangh.

The Department has with the assistance of the Council for Social Development, New Delhi, conducted a survey for the educational needs of the country in Shillong. A useful questionnaire has been framed for collecting information and has been circulated to various associations and organisations.

Kanpur to disaffiliate four ayurvedic and unani colleges

The Kanpur University has recommended non-affiliation of four ayurvedic and unani colleges. The decision is based on the findings of a high powered committee headed by the State Health and

Justice Minister, Mr. P.N. Singh. The colleges are: Pandit G.B. Pant Ayurvedic College, Hastinapur (Meerut); Bharati Ayurvedic Mahavidyalaya, Khetu Sarai (Jaunpur); Rashid Unani Medical College, Azamgarh and Unani Medical College, Kanpur. The panel found these colleges to be ill-equipped in comparison with those other institutions affiliated to Kanpur University. The committee therefore decided that the students of these four colleges be admitted to other affiliated colleges of the university in the same classes in which they were formerly studying provided they fulfil the minimum qualifications laid down by the university. The State Government has been advised not to grant permission to open any more ayurvedic and unani college in future. But efforts should be made to raise the standards of the existing colleges in the State. The Vice-Chancellor of Kanpur University, the State Medical Secretary and Director of Ayurveda and other officers of the Medical Department were other members of the committee.

Academic Planning Board for Rohtak

Rohtak University will be setting up an Academic Planning Board for the development and study of Life Sciences. The University Act envisages an institution which will specialise in teaching of and research in Life Sciences. Besides, postgraduate instructions in other subjects like Commerce and Business Management would also be available.

The university has started functioning temporarily in the postgraduate research centre of the Panjab University. A 240-hectare plot of land has been sanctioned for the development of the campus by the Haryana Government.

Rohtak has at present 10 colleges including those for girls. These colleges have been affiliated to the new university. Rohtak Medical College along with the Hospital has also been recognised as a constituent college. The university proposes to set up

Schools of Studies for Social Sciences, Languages, Commerce and Business Management, Education, Medical Sciences, Basic and Physical Sciences, Architecture and Town Planning and Demography & Geography. M.Phil courses in Hindi literature and Political Science have already been introduced. The M.Phil courses will be introduced in all other faculties from the next academic session. The university would also be adopting a village for periodical visits by students to help the rural community to tackle its problems.

Rural planning introduced in many universities

The Habitat movement is catching on. Several universities and institutes of architecture have decided to introduce a special course in rural planning and development.

The first such course has been introduced at the Delhi School of Planning and Architecture. The first batch of trainees comprising district development officers drawn from Haryana, Punjab, Kerala and other States have joined a short-term training programme.

Jawaharlal Nehru University has decided to open a Habitat faculty. The university has acquired for this purpose a 10-acre plot. The U.P. Agricultural University, Pantnagar and Rohtak University have also accepted the plan for a course in rural planning and development.

The basic objective of the movement is to revive the village as a self-reliant unit which could attract people in the countryside and engage them in profitable employment. It would ultimately create a socially and economically viable unit. Though the Habitat was to town-planners an ecological concept it had also a sociological content. Involving a comprehensive plan of ruralisation the contribution of various disciplines including those of planners and architects would be as necessary as the role of bankers and administrative infrastructure. It would also in some way check the rural migration.

Job-oriented courses at Sambalpur

Sambalpur University has decided to institute various job-oriented courses. At the pre-university and degree levels, courses would be available in agriculture, kitchen gardening, fish culture, poultry, dairy farming, shorthand typing, accountancy, book keeping and music. Of the four-year course, the first two are for practical training and the remaining two for theory. This arrangement helps those who drop out after intermediate as they would possess at least some practical knowledge of a trade.

From this academic year the university has also opened four new departments—statistics, sociology and social anthropology, human science and library science. There is an acute shortage of hostel accommodation as an unexpectedly large number of women students have sought admission. The University Grants Commission has sanctioned Rs 75 lakhs to the university for the fifth plan, the matching grant from the State Government is expected to be made available by the state government.

Madras proposes area studies

Madras University would start area study programmes from the next academic session on economic, social and cultural aspects of four neighbouring countries—Sri Lanka, Indonesia, Singapore and Malaysia. Dr. Malcolm S. Adiseshiah, Vice-Chancellor of the University, has discussed the details of the prospects of instituting such studies with the authorities of Sri Lanka.

Health Science is to be included as new course in BSc from December this year. Seven professional postgraduate diploma courses are also to be instituted. A postgraduate degree in defence studies will also be started. The women colleges have been asked by the university to make the music department co-educational to help the men students to share

the facilities provided by these colleges. The Syndicate of the University has also approved the institution of a diploma course in higher education for college teachers.

NEHU to study Fishery developments

The North-Eastern Hill University will soon initiate a detailed study of the various physical, chemical and biological nature in the fresh water system with particular emphasis on the development of fish production of the hill water areas. The university will be assisted by the University Grants Commission in this project. The strategy and technology at present available from the Fishery Research Institutes are mainly applicable to the plains. New methods of approach suited to hill area fisheries have to be developed. With this in view the Zoology Department of the NEHU has introduced a MSc course with specialisation in fresh water biology and fisheries. The North-Eastern Council has also approved in principle a project which involves fishery development in the States of north-eastern region.

Recently the Meghalaya Government has sanctioned a sum of Rs. 50,000 for taking up hydro-biological and fishery development work at the Tasek lake in Garo Hills.

Calcutta affiliates Jute Institute

Calcutta University has granted affiliation to the Institute of Jute Technology which was started twenty five years ago by the

Indian Jute Mills Association. The Institute has a big campus on the Ballygunge Circular Road. It will be responsible for conducting a three-year postgraduate diploma course in jute technology. The training part of the institute is sandwiched between six-month apprenticeship in jute mills preceding and following the theoretical training. There is also a junior level supervisor's course of six months duration which was introduced in 1974.

At present forty students can be enrolled for the diploma course. Foreign students from Bangladesh, Nepal, Thailand, Mauritius and other African countries are also being trained at the institute on the recommendations of the Central Government. Those students sponsored by the mills have to pay Rs. 3,000 annual tuition fee while others are required to pay Rs. 7,000 yearly.

UGC plans for improvement of higher education

The University Grants Commission has identified a 15-point programme for the improvement of higher education. The Commission is likely to spend two-third of its allocated funds on the general development of the universities and colleges and on creating optimum level facilities in most of the institutions to support their academic programmes. The remaining one-third amount would be spent on various quality programmes, reforms in education including curriculum development, examination reforms, restructuring of courses of study to suit rural environment and research support.

With effect from January 1977 UNIVERSITY NEWS will be published twice a month. This has been done in response to numerous suggestions received from universities and colleges.

The journal will be issued on the 1st and 16th of every month.

Correspondents and readers are requested to send in their contributions and articles as well as advertisements well in time keeping the above dates in view.

EDITOR

Grants for Gujarat University

The University Grants Commission has sanctioned a sum of Rupees eight lakhs for the fifth five year developmental works for the Gujarat University. Another sum of Rupees eight lakhs is likely to be made available by the State Government.

The Executive Council of the University accepted a donation of Rs. 10,000 for setting up the Laxmichand Mithalal Research Trust for giving research scholarships for studies in business management, textile chemistry, polymer science, computer and space science.

A tape library for the blind students of the university would also be set up. The UGC is likely to assist the project. The library would be located at the St. Xavier College, Ahmadabad

Vallabh Chairs at five universities

Five Vallabh Chairs each at a cost of five lakhs will be installed in five different universities in the country for studies and research into the life, spiritual and mundane activities of the late Shrimad Vallabhacharyaji, founder of the Vaishnavite faith. These Chairs will be instituted at the forthcoming fifth birth centenary of the spiritual leader in 1979. Aligarh Muslim University has already desired to enlist the request for a Vallabh Chair and a similar request has been received from Madras University.

Mrs. Sumati Morarji, Managing Director of the Scindia Steam Navigation Company has been appointed President of the Trust formed for the purpose of raising funds. Mr. Arvind Mafatlal, the leading industrialist, is also associated with it.

New academic courses for Andhra

The Andhra University will conduct from the next academic session a one-year postgraduate course in electronics. Electronic

measurement and instrumentation, electronic circuit analysis, fundamental and servicing of television, computer programming, instrument fabrication and servicing and cinematography, sound recording reproduction and public address system would be the subjects available for the course. The Academic Council of the university has also agreed for starting a course in space science and technology in its Physics Department. The University Grants Commission would be providing a non-recurring grant of Rs. 2.3 lakhs and a recurring grant of Rs. 55,000 a year for three years from the starting of the courses.

The MPhil course would also be started by the university and the BTech course in sugar technology will also be revived. A chair in marine engineering and mechanical handling system was also approved and the endowment of Rupee five lakhs from the Union Government for this purpose was acknowledged with gratitude.

Policy study centre at Madras IIT

The Indian Institute of Technology, Madras, has started a centre for policy studies. This project is of far reaching significance and is aimed at optimisation of production through scientific management of available resources. The facilities provided by the centre would also be made available to the third world countries.

Dr. K.A.V. Pandalai, Director of the Institute, said that any meaningful planning — fixing targets and reaching them — needed multi-disciplinary effort which institutes like the institute of technologies with the requisite infrastructure could do. The third generation computer of the institute would be made available to the centre for this purpose. The work of the centre would, in a way be an exercise in futurology. It will be of great value in properly shapping the national policies.

Review committee for Kashmir

The University Grants Commission has constituted a committee to review the academic working of the University of Kashmir under the chairmanship of Mr. Badru-ud-din Tayabji, former Vice-Chancellor of Aligarh Muslim University. Prof. Maqbool Ahmed, Member, UGC, Prof. M.V. Mathur, Director, National Staff College for Educational Planners and Administrators, New Delhi, Shri A. Rehman, Head of Planning Unit of the Council of Scientific and Industrial Research, New Delhi, Shri R. H. Chisti, Vice-Chancellor, University of Kashmir and Prof. Satya Bhushan, State Education Commissioner, would be the other members of the committee. Sheikh Abdullah, State Chief Minister while making the announcement said that the committee would look into the needs of the academic and administrative departments of the university and recommend measures for their improvement.

School of Social Change at Surat

The University Grants Commission has approved the development plans of the South Gujarat University for the fifth plan period. The university proposes to establish a School of Social Change with the intergration of the departments of Public Administration, Economics and Sociology. Public Administration, English, Education, Physics, Chemistry, Mathematics and Statistics departments would be further expanded and a new department of Bio-Sciences would be created soon.

A two-year full-time postgraduate degree in Business Management would be provided by the university in addition to its present three year part-time postgraduate diploma course. The continuing education programme of the university has also been expanded and different orientation courses have been

provided on subjects like childcare, consumers' training, primary teachers and guardians of school children. The university has received considerable fund from Hari Om Ashram Trust for these activities.

Book exhibition organised by Dibrugarh

The three-day exhibition of university level textbooks written by Indian authors on different subjects was organised by the Dibrugarh University. Inaugurating the exhibition, Shri J.N. Das, Vice-Chancellor, said that many textbooks written by Indian authors compared favourably with their foreign counterparts. The exhibition would not only engage the Indian authors but would also help create general awareness of the situation among students, teachers and others.

Earlier Shri A.N. Gupta, Head of the Raja Rammohan Roy National Educational Resources Centre, New Delhi, explained the objects of the exhibition. He said that the Centre had been endeavouring to encourage Indian authors to write textbooks of university level as well as to evaluate the books so that they could be recommended to the universities. Shri Gupta commented on the tendency among some of the authorities of Indian universities of recommending foreign textbooks when standard books by Indian authors were available. More than six hundred university level textbooks written by Indian authors were displayed.

Agricultural Engineering College at Jorhat

To cater to the needs of the entire north-eastern region of the country, a College of Engineering is to be set up in Jorhat by the Assam Agricultural University. The university has also started gram sevak and gram savika training centres to provide the training facilities to workers

Farm technology centres

The Indian Council of Agricultural Research would soon establish seven Vigyan Krishi Kendras and seven teachers training centres during 1976-77. Dr. J.S. Patel, Chairman of the four-member committee set up for this purpose said that these kendras will be administered by the respective agricultural universities and would provide the need based training to ryots all over the country. The committee is visiting different States for the establishment of these centres. The Indian Council of Agricultural Research proposes to give Rs. 10 lakhs as financial assistance to each kendra during the Fifth Plan period. So far only one kendra has been established in Pondicherry.

Sankardev Chair

The Punjabi University has decided to institute Sankardev Chair for the study of Assam saint's teachings. The university already has a fellowship of study of vaisnava teachings of the saint. Shri M.M. Choudhury, Governor of Punjab while speaking at the function at Patiala referred to the similarity in the teaching of Sri Sankardev and Guru Nanak and efforts that were being made to propagate Sri Sankardev's teachings in Punjab.

Health education courses

Guru Nanak Dev University has decided to introduce health education programme for all university students from the academic year commencing 1977. Dr. A.S. Sandhu, Dean of Academic Affairs and Students Welfare is keen to organise regular classes for the new subjects from the next academic session. Ten lectures would be delivered to every class during the teaching of pre-university three-year degree course including part I, II and III. This course would be compulsory for medical and non-medical students. The principals of colleges would issue separate certificate to such students as would have attended 75 percent of these lectures.

Concession to the handicapped students

Kerala University has granted concession to to physically handicapped students. The university has allowed them a relaxation of five per cent marks from the minimum requirement prescribed for admission to a course under the university. The Academic Council has further decided to extend the benefit of weightage of fifteen marks to ex-servicemen seeking admission to LLB and BEd courses. At present the weightage is allowed to ex-servicemen only for admission to the pre-degree and degree courses.

Revised Subscription Rates

Effective January, 1977

Period	Inland (Rs.)	Abroad	
		Surface (Rs.)	Air (Rs.)
1 year	16.00	80.00	140.00
2 years	30.00	150.00	260.00
3 years	44.00	220.00	360.00
5 years	72.00	350.00	550.00
Single copy	00.80 ps.	4.00	8.00

The Journal will be mailed on 1st & 16th of every month.

Area studies in universities

Area studies have become quite popular in Indian universities. As many as eight universities have area studies programmes. Several more are working out details for setting up these facilities. Under the scheme, an area, often a neighbouring country is selected for research. The selected area's languages, sociology, economics, politics and various other aspects are extensively studied by research workers. An area study programme envisages intensive course in language of the area chosen and

inter-disciplinary collaboration within the university taking up the programme. The idea behind these studies is that it is good to know other countries in depth, especially neighbouring countries.

The eight universities with on-going area study programmes are: Jadavpur (Pakistan, South-East Asia including Indonesia and Malaysia); Madras (Sri Lanka, Burma and Malaysia); Delhi (Africa, China, Japan and Pakistan); Aligarh (West Asia); Sri Venkateswara (Indochina); Rajasthan (South Asia) and

Poona (Latin America). Area study facilities have recently been set up at Banaras Hindu University also and the study will centre round Nepal. Schemes for developing area study are being worked out at Visva-Bharati (classic Chinese art, culture and philosophy of China), Calicut (Malaysia), Goa Centre (Latin America) and Poona (East European countries). During fifth plan period the University Grants Commission will give to each of these universities Rs. seven lakhs to ten lakhs for their study programmes.

CLASSIFIED ADVERTISEMENTS

AWADHESH PRATAP SINGH
VISHWAVIDYALAYA, REWA (M.P.)

No. Dev/76/5861-6025

Dated 14th Oct. 1976

Advertisement

Applications in the prescribed form are invited for the following posts so as to reach the Registrar, A.P.S. University, Rewa on or before 15th November 1976. Each application shall be accompanied by a crossed Indian Postal Order for Rs. 10/- (Rs. Ten only).

Department	Professor	Reader	Lecturer
Environmental Biology	1	4	4
Economics	1	1	2

Scale of Pay:

Professor: Rs. 1100-50-1300-60-1600

Reader: Rs. 700-50-1250

Lecturer: Rs. 400-40-800-50-950

Qualification

(a) Professor:

- A first or second class Master's degree of an Indian University or an equivalent qualification of a Foreign University in the subject concerned.
- Either a degree of the Doctorate standard or published work of high standard.
- Not less than 10 year's experience of post-graduate teaching and experience of successfully guiding research.

In the case of a candidate of exceptional merit the Executive Council may, on the recommendation of the Selection Committee and with the prior approval of the Kuladhipati relax any of the qualifications mentioned in (i), (ii) and (iii) above.

(b) Reader:

(i) & (ii) same as for Professor with post-graduate teaching of five years and three years experience of guiding research. Working knowledge of Hindi shall be a desirable qualification.

(c) Lecturer:

Qualifications shown as for the post of Professor at 2(a)(i). A research degree in the subject or experience of teaching Degree and/or post-graduate classes will be a desirable qualification. Knowledge of Hindi will be desirable.

Specialization

- In the department of Environmental Biology the Professor, Readers, and Lecturers should have specialization in one or more of the following branches:
 - For the post of Professor & Readers—Ecology, Physiology, Micro-biology, Biochemistry and Endocrinology.
 - For the post of Lecturers—Cytogenetics, Cell Physiology, Cell Biology, Biometry, Developmental Biology and Biophysics.

- In the department of Economics of the two senior positions of a Professor and a Reader, one should be in Business Economics and one should be in Econometrics.

- The above scales carry with them dearness allowance and the benefit of contributory provident fund in accordance with the rules of the university. A higher start can be given to deserving candidates. The matter regarding revision of the above pay scales is under consideration of the University.
- If the candidates are not found suitable for a higher post, they can be considered for appointment on the lower post.
- Applications should be made on the prescribed form obtainable from the University office on payment of Rs. 5/- (Rupees Five only) in the shape of a Crossed Indian Postal Order payable to the Registrar, A.P.S. University, Rewa.

- Candidates already in service should apply through proper channel.
- Candidates selected for interview will be required to travel at their own expense.

- The University reserves the right to fill up or not to fill up the post advertised and or to call only selected candidates for interview.

Dr. S. R. Pathak
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY KANPUR, 11 POST OFFICE KANPUR

Advertisement No. 27/76

Applications are invited for the following positions in the Department of Chemistry and the Civil Engineering of the Institute

Assistant Professor—Scale of Pay :
Rs. 1200-50-1300-60-1900
Lecturer —Scale of Pay :
Rs. 700-40-1100-50-1600

Department of Chemistry :

Number of posts 8. Two posts of Lecturers are reserved for Scheduled caste/Scheduled tribe candidates. In the event of non-availability of SC/ST candidate, the reserved posts would be treated as dereserved. The department is seeking individuals with ability and aptitude for teaching, research and development with specialization in :

- Physical Chemistry with interest in areas such as theoretical chemistry, solid state Chemistry, magnetic resonance, thermodynamics, spectroscopy etc.
- Inorganic Chemistry with interest in areas such as physical inorganic chemistry, chemistry of main group elements, diffraction techniques, bio-inorganic chemistry, reaction mechanism, etc.

3. Organic Chemistry with interest in areas such as physical organic chemistry, bio-organic chemistry, organic synthesis etc.

Qualifications : For the post of Assistant Professors.

- (a) Essential : i. A consistently good academic record in specified (or related) areas of specialization.
ii. Doctorate degree with at least 5 years experience in teaching/research/industry with a satisfactory record and a record of independent research/development activity beyond thesis work.
- (b) Desirable : Publications in referred Journals/Patents.

Qualifications : For the post of Lecturer

- (a) Essential : i. A consistently good academic record in specified (or related) areas of specialization
ii. Doctorate Degree
- (b) Desirable : Some teaching/research/industrial experience with a publication record and a strong interest in undergraduate/postgraduate programmes including laboratory and curriculum development and also research and development activities of relevance to national needs

In exceptionally meritorious cases, the selection committee may relax the required number of years of experience for all posts.

Department of Civil Engineering :

Number of posts 6. One post of Lecturer is reserved for Scheduled caste, Scheduled tribe candidates. In the event of non-availability of SC/ST candidate, the reserved post would be treated as unreserved. The department is seeking individuals with ability and aptitude for teaching, research and development in the following areas of interest :—

1. Civil Engineering with specialization in Building Engineering Materials and Design.
2. Civil Engineering with specialization in construction, planning and management of civil engineering works.
3. Civil Engineering with specialization in Architecture and Town Planning.
4. Water resources engineering with computer aided design.

5. Soil mechanics and foundation engineering with emphasis on experimental, numerical and probabilistic design of underground structures.

6. Outstanding candidates in any of the following areas :

Environmental, Hydraulic and Water resources, Soil Mechanics, and Structural Engineering.

Qualifications : For the post of Assistant Professor.

- (a) Essential : (i) A consistently good academic record in specified (or related) areas of specialization.
(ii) Doctorate degree with at least 5 years experience in teaching/research/industry with a satisfactory record and a record of independent research/developmental activity beyond thesis work.

OR

M. Tech. (or equivalent) degree with at least ten years of practical experience in a position of responsibility in a public or private undertaking with a record of significant and meaningful development/project activity.

- (b) Desirable : Publication in referred Journals/Patents.

Qualifications : For the post of Lecturer.

- (a) Essential : (i) A consistently good academic record in specified (or related) areas of specialization.

- (ii) Doctorate Degree

OR

M. Tech. (or equivalent) degree with at least four years of practical experience in a public or private undertaking with a record of personal accomplishments in developmental/project activity.

- (b) Desirable : Some teaching/research/industrial experience with a publication record and a strong interest in undergraduate/postgraduate programmes including laboratory and curriculum

development and also research and development activities of relevance to national needs.

In exceptionally meritorious cases, the selection committee may relax the required number of years of experience for all posts.

Posts are permanent and carry retirement benefits in shape of CPF, CPF-cum-Gratuity and GPF-cum-Pension-cum-Gratuity Schemes as may be opted according to rules. The age of retirement is 60 years.

During the first year the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidate. Candidates called for interview will be paid second class railway fare for travel inside India from the place of duty to Kanpur and back by the shortest route.

The Indian Institute of Technology, Kanpur has well equipped laboratories and central facilities. The Computer Centre has IBM 7044, 1401 and 1800 and PDP 1 systems as also ECIL TDC 316 and a group of experienced programmers. The following Central facilities are available 2 Mv Van de Graff accelerator, 4096 multi channel analyser and other radiation detection equipment, Liquid nitrogen and liquid helium plants, NMR, EPR, Mass Spectrometer, X-ray Plant, UV and IR spectrometers, glass blowing shop, crystal growth facility, central instrumentation laboratory, precision machine shop, electron microscope besides a large workshop for the fabrication of specialized research apparatus. The Institute has a well stacked library with a more than 1,50,000 volumes and 1,300 periodicals. The campus facilities include a primary and higher secondary schools, a health centre and shopping centre.

Applications should be made on the the prescribed forms, obtainable free of cost from the Registrar of Institute sending a self-addressed unstamped envelope of 25 x 10 cm (Applications should be accompanied by a Indian Postal Order of Rs. 7.50 (Rs. 1.87 for SC/ST candidates)

Those abroad may apply on plain paper giving full particulars including the Department and area of interest. They should give names of three experts who can comment on the work and competence of the applicant.

All the applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 U.P. (India) on or before Dec. 11, 1976.

Candidates selected will be expected to join the Department at the earliest.

SOUTH GUJARAT UNIVERSITY
Udhana Magdalla Road,
P.B. No. 49, Surat-7

Hari Om Ashram Prerit "Shree Chunilal Vajeram Reshamwala Smarak Trust Award"

Applications are invited for "the Hari Om Ashram Prerit Shree Chunilal Vajeram Reshamwala Smarak Trust Award" of the value of Rs. 3,500/- to be given to an Indian, for his outstanding original research work of merit as judged from his printed research publications in the field of "Oceanology" during five years ending December, 1975.

Four copies of the application in prescribed forms available from the University Office alongwith four copies of the printed publications of the candidate should reach the Registrar, South Gujarat University, P.B. No. 49, Surat-395007 (India) on or before 30-11-1976.

Prescribed application forms and rules governing the award will be available from the University Office on payment of Rs. 5/-.

Surat G.A. DESAI
Date : 6th October, 1976 REGISTRAR

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY, BOMBAY-400020.

Applications are invited on prescribed forms available from the University office at 1, Nathibai Thackersey Road, Bombay, on payment of Rs. 5/- (money order or in cash) for the following posts to be filled in at the Women's Polytechnic of the S.N.D.T. Women's University, located at its Juhu Campus. The medium of teaching will be English. Applications should reach the undersigned by November 20, 1976.

A. Heads of Departments

- (a) Costume Design & Dress making :
Specialization in Textiles/Clothing/Dress Designing/Fashion will be preferred.
- (b) Food-Technology :
Specialization in Food-Technology will be preferred.
- (c) Pathology :
Specialization in Pathology/Biochemistry with experience in Medical Technology will be preferred.

**B. Assistant Lecturer in Pharmacy
C. Assistant Lecturer in English
Qualifications**

A. Head of the Departments

- (i) A first or second class Master's Degree of an Indian University or an equivalent qualification of foreign University in the subject concerned.

- (ii) Either a research degree of the doctorate standard or an outstanding competence assessed from the review of published research carried out during the five years preceding the date of the application or the published literary or scientific work during the said period.
- (iii) Teaching and/or administrative experience of about 7 years in institution with applied course like those in a Polytechnic.

B. Assistant Lecturer in Pharmacy

At least a Second Class Master's Degree in Pharmaceuticals / Pharmacognosy. Persons with lower qualifications in the above subject will be considered in case suitable persons with prescribed qualifications are not available.

C. Assistant Lecturer in English

At least a Second Class Master's Degree in English preferably with some study in linguistics.

Note

- (a) Condition No. (ii) under A at qualifications may be waived in exceptional cases or for persons with long experience of administration and teaching. Candidates with post-graduate diploma instead of a degree in the subject concerned may also be considered.
- (b) As the Polytechnic will be organized on semester system, a person with experience of having worked in this type of a system will be preferred.
- (c) Other things being equal, preference will be given to candidates from Scheduled castes/Scheduled tribes/Backward class communities.
- (d) Conditions of service and leave rules will be as laid down by the University from time to time.
- (e) Higher starting salary may be considered in exceptional cases.
- (f) Only suitable candidates will be called for interview.

Salary Scales

1. Heads of the : Rs. 650-45-1100-50-
Department 1200 + admissible allowances
2. Assistant : Rs. 300-15-390-20-
Lecturer 430-EB-20-550 - 25-575 + admissible allowances,

(Smt.) Kamalini H. Bhavsali
REGISTRAR

UNIVERSITY OF COCHIN
No. Ad. A2.66/76

Notification

Applications are invited for the following posts under the University in the prescribed forms (4 Sets) which can be had from the Office of the Registrar, University of Cochin, Cochin Palace P.O., Tripunithura 682301 on payment of Rs. 5/- by Cash at the University Cash Counter or by M.O. If a person intends to apply for more than one post, applications for each post should be submitted separately. The post for which the application forms are required, should be specifically indicated in the Money Order Coupon. The receipt of remittance should be attached to the requisition for the forms.

(a) Dept. of Industrial Fisheries

Reader—3 posts.

One each in Fishing Craft and Gear Technology/Fish Processing Technology/Fishery Economics.

Lecturer—3 posts:

One each in Fishing Craft and Gear Technology/Fish Processing Technology/Fishery Economics.

(b) Dept. of Marine Sciences

Reader—2 posts:

One each in Marine Geology/Geology

Lecturer—2 posts:

One each in Geology/Geophysics

Scale of Pay:

(a) Reader: Rs. 850-50-1150-2-1450

(b) Lecturer: Rs. 600-40-800-50-1100-50-2 1250

The details of qualifications, age, registration fee etc. in respect of each post can be had from the University Office along with the application forms.

Completed applications should reach the University Office on or before 30th November, 1976

Candidates will have to appear for interview, if called for, at their own cost.

Appointments to the posts will be made strictly in accordance with the Section 6(2) of the Cochin University Act 1971.

NOTE: Candidates from abroad with doctorate degree in the concerned subjects with publications of high standard and sufficient teaching experience at postgraduate level may apply by giving their Bio-data in plain paper, to the Registrar with a bank draft/Postal Order for Rs. 25/- as Registration Fee.

REGISTRAR

INDIAN SCHOOL OF MINES

DHANBAD-826004

Advt. No. 420031/76

Dated October 25, 1976.

ANNOUNCEMENT OF FACULTY POSITIONS, etc.

I. The following vacancies exist at the Indian School of Mines—a 'deemed University' under the University Grants Commission Act, 1956.

1. Five Assistant Professors : Three for Deptt of Mining Engg and two for Deptt of Applied Geology.
2. Six Lecturers : Two for Deptt of Mining Engineering, Two (One in Electrical Engg and One in Mining Machinery) for Deptt of Engg and Mining Machinery, One (in Coal/Mineral Preparation) for Deptt of Chemistry, Fuels and Metallurgy and One in Electronic Data Processing for the Deptt of Industrial Engg and Management.
3. One Asstt Workshop Superintendent for Central Workshop in Deptt of Engg and Mining Machinery.
4. One Asstt Librarian for Central Library.

PAY SCALES and UPPER AGE LIMITS :

1. Asstt Professor : Rs. 1200-1900/40 years
2. Lecturers : Rs. 700-1600/35 years
3. Asstt Workshop Supdt : Rs. 700-1300/40 years
4. Assistant Librarian : Rs. 650-1200/40 years

Allowances admissible as per Government of India rules sanctioned from time to time. Upper age limit relaxable in respect of certain categories and persons otherwise considered specially suitable.

II. Specialising in the field of earth sciences and technology Indian School of Mines conducts two B.Tech programmes (in Mining Engg and Petroleum Engg) two M.Sc. Programmes (in Applied Geology and Applied Geophysics, as well as several Post-graduate industry-oriented programmes, including three M.Tech programmes (in Mining and Mine Planning, Opencast Mining, Mining Machinery), One D.I.S.M. M.Tech Programme (in Mineral Preparation), a post-graduate diploma programme in Coal Mining Machinery, and two (post-M.Sc.) M.Sc. (Tech) programmes—one in Mineral Exploration and the other in Mining Geophysics. An additional M.Tech programme in M.Tech (Pet. Prod'n) and two more M.Sc. (Tech) programmes—one in Engg Geology and the other in Petroleum Exploration are on the anvil.

The School also has an ambitious continuing education/executive development programme, a very strong R & D activity and an approved scheme of institutional consultancy.

III. Information for candidates and prescribed application forms are obtainable from the Registrar, Indian School of Mines, Dhanbad-826004, on sending a self-addressed envelope of the size 29 cm x 12 cm affixed with postage stamps of the value of Rs. 2.70 paise. Applications in the prescribed application form, complete in all respects, should reach the undersigned on or before November 27, 1976. Those in service are advised to apply through their employer (s).

M.S. RAMAMURTHY
REGISTRAR

ALIGARH MUSLIM UNIVERSITY

Advertisement No. 18/76-77

Applications, on the prescribed form, are invited for the following posts:

1. Reader in Education:

Scale: Rs. 1200-50-1300-60-1900 plus allowances.

Qualifications:

(a) A first or a high second class Master's degree in Education of an Indian University or an equivalent foreign quali-

fication; (b) A research degree of a doctorate standard or published work of a high standard; and (c) At least five years experience of teaching postgraduate classes and some experience of guiding research.

2. Reader in West Asian Studies (History) (Temporary):

Scale : Rs. 1200-50-1300-60-1900 plus allowances.

Qualifications:

(a) A first or a high second class Master's degree in the subject concerned

of an Indian University or an equivalent foreign qualification; (b) A research degree of a doctorate standard or published work of a high standard in Modern Arab History/Arabic Thought; and (c) At least five years experience of teaching postgraduate classes and some experience of guiding research. Knowledge of Modern Arabic.

Desirable:

Knowledge of West Asian Social & Cultural Trends. Working knowledge of French, German or Russian.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 23 x 10 cm. Last date for receipt of application forms is 20th November, 1976. Incomplete application forms and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

Jamalur Rahman
REGISTRAR

JIWAJI UNIVERSITY GWALIOR

No. F. 28 (Reader/Physics) D/76/2242

Dated: 27 October, 1976

Advertisement

Applications are invited for the post of Reader in Physics in the Scale of Pay of Rs. 700-50-1250 (Likely to be revised). The appointment will be temporary but likely to be made permanent. The post carries benefits of Dearness and other allowances and Contributory Provident Fund as admissible under University rules.

Qualifications: Essential:

- (a) A First or Second class Master's Degree of an Indian University or an equivalent qualification of a Foreign University in the subject concerned.
- (b) Either a degree of the Doctorate standard or Published work of high standard.
- (c) Specialisation in theoretical Physics (Nuclear Physics or field theory).
- (d) Post-Graduate teaching experience of five years and three years experience of guiding research.

Desirable: Working knowledge of Hindi.

Age: Not more than 50 years on 1st November, 1976.

Preference will be given to Scheduled Caste/Scheduled Tribe candidates, who are considered fit. The application on prescribed form should be submitted along with a crossed Indian Postal Order of Rs. 5/- in favour of Registrar, Jiwaji University, Gwalior and must reach the Registrar by name on or before 25th November, 1976. The application form can be obtained from the University Office by sending I.P.O. of Re. 1/- (Rupee One).

Money orders will not be accepted. Persons already in service must send the application through the employer.

A.K. Bhattacharya
REGISTRAR

KONKAN KRISHI VIDYAPEETH

Dapoli: Dist: Ratnagiri

(Maharashtra State)

(INDIA)

No. EST/A-I/Advt-X/of 1976

Dated the 27th October, 1976

Applications in the prescribed forms are invited for the undermentioned posts under the University on or before 6th December 1976.

Applications received after the last date will be rejected. Application forms together with other details can be obtained from the Registrar, Konkan Krishi Vidyapeeth, Dapoli, Dist: Ratnagiri, Maharashtra State, on furnishing a self-addressed stamped envelope (10 cm x 25 cm) affixing postage stamps of the value of 50 paise and a crossed Indian Postal Order of the value of Rupee 1/- payable to the Comptroller, Konkan Krishi Vidyapeeth, Dapoli at post Office, Dapoli. Blank Application forms will not be issued by post after 20th November, 1976. Completed application forms accompanied by a Crossed Indian Postal Order of Rs. 2.50 payable to the Comptroller, Konkan Krishi Vidyapeeth, Dapoli at Post Office Dapoli should reach this office not later than 6th December, 1976. Persons applying from places outside India may apply on plain paper, giving full details regarding the age, qualifications, experience, etc. Payment of application fee will not be necessary in their cases.

Faculty of Agriculture:

1. **Dean in the scale of Rs. 1600-1800-2000**
Qualifications:

Ph.D. degree in the faculty plus fifteen years' experience after acquiring postgraduate degree in the field of teaching, research, and/or extension education plus experience in a responsible position in technical administration and ability to initiate and organize research, teaching and extension education

Or

Master's degree in the faculty plus fifteen years' experience after acquiring postgraduate degree in the field of teaching, research and/or extension education plus experience in a responsible position in technical administration and ability to initiate and organize research, teaching and/or extension education plus outstanding achievements in the academic and research fields.

2. **Associate Dean in the scale of Rs. 1100-50-1300-60-1600**

Qualifications:

Ph.D. in the Faculty with seven year's experience after Ph.D. in teaching or research as evidenced by published research papers or extension education.

Or

Master's degree in the Faculty with ten years' experience after acquiring

Master's degree in teaching or research as evidenced by published research papers or extension education.

Experience in technical administration, ability to initiate and organize research essential.

3. **Associate Professors in the scale of Rs. 700-50-1250 in the disciplines of:**

- (i) Plant Pathology
- (ii) Agricultural Economics
- (iii) Horticulture.

Qualifications:

Ph.D. with two years' experience after Ph.D.

Or

Master's degree with five years' experience in the subject after post-graduate degree.

Or

Master's degree with ten years' total experience in the subject.

Faculty of Veterinary Science

4. **Associate Dean in the scale of Rs. 1100-50-1300-60-1600**

Qualifications:

Ph.D. in the Faculty with seven years' experience after Ph.D. in teaching or research as evidenced by published research papers or extension education.

Or

Master's degree in the Faculty with ten years' experience after acquiring Master's degree in teaching or research as evidenced by published research papers or extension education.

Experience in technical administration, ability to initiate and organize research essential.

5. **Assistant Professors in the scale of Rs. 400-40-800-50-950 in the discipline of:**

- (i) Animal Nutrition
- (ii) Surgery

Qualifications:

Ph.D. in the subject.

Or

Master's degree with two years' experience in the subject after post-graduation.

Or

Master's degree in the subject with either Bachelor's degree or Master's degree in first class or equivalent C.G.P.A.

Higher starting pay may be considered in deserving cases in respect of all the posts. Other benefits such as dearness allowances and other allowances as per rules of the University.

Age: Maximum age limit as on 6th December '76 will ordinarily be 40 years for the posts at Sr. No. 1 to 4 & 30 years for the post at Sr. No. 5. Maximum age limit relaxable upto 5 years in deserving cases. The age limit is not applicable to persons already in the service of this University. Relaxation in age to S.C./S.T. and O. B.C. as per State Government Rules.

The fact that the posts are advertised does not mean that necessarily all the posts will be filled in.

Canvassing in any form by or on behalf of the Candidate will be a disqualification.

B.B. Rame
REGISTRAR

ALIGARH MUSLIM UNIVERSITY

Advertisement No. 17/76-77

Applications, on the prescribed form, are invited for the following posts:

1. **Trained Graduate Teacher—S. T. High School (temporary but likely to become permanent)**

Scale: Rs. 440-20-500-EB-25-700-EB-25-750 plus allowances.

Qualifications:

Atleast a second class Bachelor's Degree with Physics, Chemistry and Mathematics. University degree/Diploma in teaching and/or adequate experience of teaching the subjects in College/Secondary classes.

Desirable:

Capable to teach through English medium.

2. **Trained Graduate Teacher, S. T. High School (Temporary but likely to become permanent)**

Scale: Rs. 440-20-500-EB-25-700-EB-25-750 plus allowances.

Qualifications:

Atleast a second class Bachelor's degree with Biology and Chemistry. University Degree/Diploma in teaching and/or adequate experience of teaching the subjects in College/Secondary Classes.

Desirable:

Capable to teach through English medium

3. **Anaesthetics, Post-Patrum Programme Scheme—Department of Obst. & Gynaecology.**

Scale: Rs. 550-30-700-40-900-50-1200 plus allowances.

Qualifications:

MBBS from a recognised Medical College with one year's experience as House Surgeon preferably in Anaesthesiology Department.

Desirable:

Postgraduate Diploma in Anaesthesia (D A)

4. **Assistant Engineer, Building Department**

Scale: Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200 plus allowances.

Qualifications:

Bachelor's degree in Civil/Mechanical Engineering of a Statutory Indian University with atleast five years experience in Water Supply, Sewage and Sewerage Disposal System in an organisation or undertaking responsible for maintenance and operations of Water Supply, Sewerage and Sewage Disposal.

Or

Diploma in Civil/Mechanical Engineering with ten years experience in Water Supply, Sewage and Sewerage Disposal System in an organisation or undertaking responsible for maintenance and operations of Water Supply, Sewerage and Sewage Disposal.

Age: Not below 30 years.

5. **Sr. Tech. Asstt. (temporary), Department of Medicine:**

Scale: Rs. 550-25-750-EB-30-900 plus allowances.

Qualifications:

B.Sc. with training experience in Lab. Techniques of the subject.

Desirable:

Three years experience of working in Pathology/Biochemistry/Cardiology Lab. of a recognised Medical College.

6. Staff Nurse, A. K. Tibbiya College:

Scale: Rs. 425-15-560-EB-20-640 plus allowances.

Qualifications:

Matric with General Nursing and Midwifery Training 3½ years. Registered under any state.

Desirable:

Three years experience in any recognised hospital. Knowledge of Urdu.

7. Pharmacist, University Health Service:

Scale: Rs. 330-10-380-EB-12-500-EB-15-560 (for qualified Pharmacist) and Rs. 330-8-370-10-400-EB-10-480 (for others) plus allowances.

Qualifications:

Passed Matriculation or its equivalent examination. Passed Diploma in Pharma-

macy. Experience of working as a Pharmacist in a Hospital or Dispensary.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is 20th November, 1976. Incomplete applications and those received late may not be considered.

Higher start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

**Jamalur Rahman
REGISTRAR**

INDIAN SCHOOL OF MINES

DHANBAD-826004

Advt. No. 420006/76

Dated October 25, 1976

Applications are invited for the following posts :

1. Two Foreman Instructors for the Central Workshop—one in Mechanical Engg and one in Automobile Engg.
2. Three Senior Technical Assistants—one for the Deptt. of Industrial Engg and Management and two for the Deptt. of Engg and Mining Machinery.
3. One Scientific/Technical Assistant—for the Deptt. of Chemistry, Fuel & Metallurgy.
4. One Glass Blower—for the Central Instrument Service Centre.
5. One Draftsman—for the Deptt of Applied Geology.

Pay Scales: Foreman Instructor : Rs. 650-30-740-35-880-EB-40-960
STA: Rs. 550-25-750-EB-30-900
TA: Rs. 425-15-500-EB-15-560 20-700
Glass Blower : Rs. 380-12-440-EB-15-560-EB-20-640
Draftsman : Rs. 330-8-370-400-EB-10-480

Besides pay, ISM employees get allowances as admissible to Government of India employees.

Age: Normally not more than 40 years in case of Foreman Instructor, 35 yrs. in case of STA and 30 for other posts, relaxable for certain categories of candidates.

Further details and prescribed application forms are obtainable from the Registrar, Indian School of Mines, Dhanbad-826004 on sending a self-addressed envelope of size, 29 cm x 12 cm, affixed with postage stamps of the value of Rs. 2.65 only. Completed application forms should reach the Registrar on or before November 0, 1976.

Canvassing in any form will be treated as a disqualification.

**M.S. RAMAMURTHY
REGISTRAR**

GAUHATI UNIVERSITY

Gauhati-781014

Advt. No. 15 of 1976

Applications are invited for the following posts:

1. Reader in Persian: One post.
Specialisation: Open
2. Lecturer in Persian: Two posts.
Specialisation: Open
3. Lecturer in Sanskrit—One post (permanent)
Specialisation: Darshana
4. Lecturer in Education: One post (permanent)
Specialisation: Open
5. Lecturer in Zoology: One post (temporary)
Specialisation: Ichthyology/Fishery Biology
6. Lecturer in Anthropology: Two posts (temporary)
Specialisation: Social Anthropology
7. Mechanical Engineer: } Workshop & one post (5th plan) } Central In-
8. Electronic Engineer: } strumentation } Laboratory.
One post (5th plan)

Scale of Pay:

Reader: Rs. 700-50-1250

Lecturer: Rs. 400-40-800-50-950

Mechanical & Electronic Engineer: Rs. 700-50-1250

The scales of pay are subject to revision according to recommendations of the UGC.

All posts carry usual allowances admissible under the University rules in force from time to time and permanent posts carry the benefit of pension-cum-G.P.F.-cum-Gratuity or Contributory Provident Fund as per relevant statutes of the University.

In case where specialisation has not been mentioned against a post candidates should state their areas of specialisation at the Master's and Doctor's degree levels.

Essential Qualification: Reader (Arts):
(a) Doctor's degree or published work of an equivalent high standard.

(b) Consistently good academic record with First or High Second Class (B+) Master's Degree in a relevant subject or any equivalent degree of a foreign university.

(c) Evidence of continuous research, and
(d) experience of 5 years postgraduate teaching or 8 years Honour's teaching.

Lecturer (Arts & Science):

(a) A Doctor's degree or published work of an equally high standard and

(b) Consistently good academic record with First or High Second Class (B+) Master's degree in a relevant subject or an equivalent degree of a foreign University.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing Doctor's degree or equivalent published work is not available or is not

considered suitable a person possessing a consistently good academic record, (due weightage being given to M.Phil. or equivalent degree or research work quality) may be appointed on the condition that he will have to obtain a Doctor's Degree or give evidence of published work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

For Mechanical Engineer & Electronic Engineer: M. Tech. degree in Mechanical Engineering for the Mechanical Engineer and M.Tech. degree in Electronic for the Electronic Engineer. Candidates should have at least five years' experience in a public/Private sector enterprise in the relevant branches.

Applications in plain paper in quadruplicate giving full bio-data including (1) Name in full (in block letters) (2) Father's name (3) Date of birth by the Christian era, (4) (a) Permanent residence and address (in full), 4(b) Present address (in full), (5) Present occupation if any and the name of employer, (6) Present salary drawn (if any), (7) Detailed academic career with marksheets and subject studies (including Honours) in Degree and Post-graduate courses from Matriculation/Higher Secondary/High School Leaving Certificate Examination onwards and copies/reprints of research contribution, (8) Name and address of two referees not related to the candidate together with an application fee of Rs. 10 (Rupees ten) and (Rs. 7.50 in the case of scheduled caste/scheduled tribe candidates) by crossed Indian Postal Order drawn in favour of the Gauhati University payable at the Gauhati-781014 post office should be sent in an inner sealed cover superscribed 'Application for post of (Name of the post applied for) Advt. No. 15 of 1976 enclosed in an outer cover addressed to Shri K.C. Bhattacharyya, M.A. (Cal.) Registrar, Gauhati University, Gauhati-781014 to reach him not later than 20th November, 1976.

The number of this advertisement and name of the post applied for must be referred to in the application. Persons in employment should apply through proper channel or with a no objection certificate from the present employer.

Candidates will be required to appear at an interview if and when called for.

Canvassing directly or indirectly will be a disqualification.

HIMACHAL PRADESH UNIVERSITY
Shimla-171005

Recruitment Branch
Advertisement No. 15/76

Applications are invited for the following posts in the University Teaching Departments:

Department	Name of the post	Specialisation
Business Administration	Professor Associate Professor Assistant Professor	
English	Professor Associate Professor	Drama/Comparative literature Novel/Poetry/Renaissance.
Economics	Professor	
Mathematics	Professor Associate Professor	Fluid mechanics, Solid Mechanics, Plasma Physics, Algebra, Analysis, Topology, Numerical Analysis, Functional Analysis, Differential Geometry.
Physical Chemistry	Professor	(i) Non-equilibrium Thermodynamics (ii) Electro-chemistry (iii) Membrane Phenomenon.
Political Science	Assistant Professor (leave vacancy for 2 years) Professor Assistant Professor Assistant Professor (leave vacancy for 8 months)	
Linguistics	Associate Professor	
Physics	Associate Professor	Theoretical or Experimental-physics
Sanskrit	Associate Professor (leave vacancy for 1 year) Associate Professor	In one or more of the (i) Veda (ii) Darshana (iii) Sahitya.
Music	Associate Professor	
Psychology	Assistant Professor	
Education	Associate Professor	

Qualifications & Pay Scales:

(i) Professor: Rs. 1500-60-1800-100-2000-125/2-2500.

Ph.D. or an equivalent degree; five years post-graduate teaching/teaching of honours classes or five years post-doctoral research in a University or a Research Institute; and distinguished research work.

(ii) Associate Professor: Rs. 1200-50-1300-60-1900.

Ph.D. or an equivalent degree, two years post-graduate teaching/teaching of honours classes or post-doctoral research in a University or a Research Institute; and distinguished research work.

(iii) Assistant Professor: Rs. 700-40-1100-50-1600.

(a) Ph.D. or an equivalent degree or published work of an equally high standard in the subject concerned; and (b) having consistent good academic record with First or High Second Class (B plus) Master's degree in the subject concerned or in an allied subject, or an equivalent degree of a foreign University.

The above scales carry with them dearness allowance and benefit of C.P.F./G.P.F. etc. in accordance with the rules of the University. Provided that the Executive Council may, if necessary, relax any qualifications at (b) above on the recommendations of the Vice-Chancellor or the Selection Committee, as the case may be, if the research work of a candidate, as evident either from his thesis or from his published work, is considered to be of a very high standard. Provided further that a candidate possessing a con-

sistent good academic record may be appointed, if a candidate with qualifications at (a) above is not available or is not considered suitable, on the condition that he will have to attain the required qualifications within five years of his appointment, failing which he shall not earn future increments until he fulfils the conditions.

In case of selection and appointment the person concerned will have to serve the University at least for a period of two years.

Higher start in the grade is admissible on the basis of special qualifications and experience.

If the candidates are not found suitable for a higher post, they can be considered for appointment to lower post.

Applications should be made on the prescribed form obtainable from the Officer Incharge Recruitment by sending a self addressed stamped envelope (size 23 x 10 cms) and applications complete in all respects together with a crossed postal order of Rs. 7.50 (not applicable in case of those applying from outside India), drawn in favour of the Finance Officer, Himachal Pradesh University, should reach the undersigned by the 30th November, 1976. A person applying for more than one post should send a separate application for each post.

Note: Persons who have applied for these posts in response to our advertisement Nos. 17/75, 2/76, 7/76, and 11/76 need not apply again. They may, how-

ever, send additional information, if any. Applicants for the posts of Assoc & Asstt. Professors in Business Admn. in response to advt. No. 17/75 and Asstt. Prof. in Psychology in response to advt. No. 2/76 shall have to apply again.

D. C. Pant
Officer Incharge Recruitment

HIMACHAL PRADESH UNIVERSITY

Simla-171005
'Recruitment Branch'
Advertisement No. 13/76

Applications are invited for the following posts in the Directorate of Correspondence Courses:

Department	Name of the post	Specialisation
For Associate Professors:		
Education	Associate Professor	At least three years experience of teaching post-graduate classes through Correspondence Courses
Hindi	Associate Professor	
Political Science	Associate Professor	
Economics	Associate Professor	
English	Associate Professor	
History	Associate Professor	
Commerce	Associate Professor	
	Deputy Director/Associate Professor	Preference will be given to candidates having administrative experience.
Sanskrit	Lecturer	

Qualifications & Pay Scales:

(i) Associate Professor:

Rs 1200-50-1300-60-1900

Ph.D or an equivalent degree; two years post-graduate teaching/teaching of honours classes or post-doctoral research in a University or a Research Institute; and distinguished research work.

(ii) Deputy Director Associate Professor:

Similar to that of (i) above.

Upper age limite: 55 years.

(iii) Lecturer: Rs. 700-40-1100-EB-50-1300-Assessment-60-1600.

(a) M.Phil or an equivalent degree or published work indicative of capacity for independent research work; and (b) having consistent good academic record with First or High Second Class (B plus) Master's degree in the subject concerned or an allied subject, or an equivalent degree of a foreign University.

The above scales carry with them dearness allowance and benefit of C.P.F./G.P.F. etc. in accordance with the rules of the University

Provided that the Executive Council may, if necessary, relax any qualifications at (b) above on the recommendations of the Vice Chancellor or the Selection Committee, as the case may be, if the research work of a candidate, as evident either from his thesis or from his published work, is considered to be of a very high standard:

Provided further that a candidate possessing a consistent good academic

record may be appointed, if a candidate with qualifications at (a) above is not available or is not considered suitable, on the condition that he will have to attain the required qualifications within five years of his appointment, failing which he shall not earn future increments until he fulfils the conditions.

In case of selection and appointment the person concerned will have to serve the University at least for a period of two years. Higher start in the grade is admissible on the basis of special qualifications and experience.

If the candidates are not found suitable for a higher post, they can be considered for appointment to lower post.

Applications should be made on the prescribed form obtainable from the Officer Incharge Recruitment by sending a self-addressed stamped envelope (size

For Associate Professors:

At least three years experience of teaching post-graduate classes through Correspondence Courses

Preference will be given to candidates having administrative experience.

23 x 10 cms) and applications complete in all respects together with a crossed postal order of Rs 7.50 (not applicable in case of those applying from outside India), drawn in favour of Finance Officer, Himachal Pradesh University, should reach the undersigned by the 30th November, 1976.

A person applying for more than one posts should send a separate application for each post.

Note: Persons who have applied for the posts of Associate Professors, Deputy Director and Lecturer in Sanskrit in response to our advt. Nos 17/75, 5/76 and 6/76 respectively, need not apply again. They may, however, send additional information, if any.

D.C. Pant
Officer Incharge Recruitment

BALLIOL COLLEGE UNIVERSITY OF OXFORD Inlaks Scholarship

Applications are invited from male graduates who are citizens of India for a scholarship, tenable at Balliol College, Oxford. The Scholar will be expected to have obtained a first-class degree from an Indian University, and will be expected to read for a degree at Oxford University, either at graduate or at undergraduate level. The Scholarship is tenable for two

years in the first instance, commencing October 1977, may be extendable to three years. The emoluments paid to the Scholar will be £ 1,710 p.a. in addition to all University and College fees. The Scholar can expect to be accommodated in College for at least his first year. No special provision will be made for married students. Application forms and further details are obtainable from Inlaks Scholarship c/o St Stephen's College, Delhi-110007.

JAWAHARLAL NEHRU UNIVERSITY
New Delhi-110057
Advt. No. Aca. III/9/76

Applications are invited for faculty positions at the level of Professor/Senior Fellow, Associate Professor/Fellow, and Assistant Professor/Associate Fellow for the School of Computer and Systems Sciences.

Individuals with adequate qualifications and experience, who are interested to develop inter-disciplinary programmes in one or more of the following areas or other related areas are invited to apply. Acquaintance with Computer Systems and ability to work with Computer will be additional qualifications:

1. Graph Theory; 2. Artificial Intelligence; 3. Simulation by analog and hybrid techniques of biological, ecological or economic systems; 4. Logic Design (Digital systems Engineering) 5. Finite Group Theory; 6. Automata Theory; 7. Systems' analysis and Systems' programming; 8. Operations Research; 9. Numerical Analysis; 10. Electronics (Electronic circuits and Instrumentation System); and 11. Computer applications of Statistical methods in problems of Biology and Economics.

Published work should be communicated by titles and where possible by enclosing reprints.

Essential Qualifications:

Professor/Senior Fellows: (a) Consistently good academic record with at least a high second class Master's degree in the appropriate discipline or an equivalent qualification from an Indian/Foreign University;

(b) A Doctorate degree or published work of an equally high standard;

(c) About ten years' experience of teaching and/or research; and

(d) Capacity to guide research.

Desirable Qualifications:

(a) Experience in Computer Systems and their management;

(b) Application of mathematical techniques to other areas of science.

Essential Qualifications:

Associate Professor/Fellow: (a) Consistently good academic record with at least a high second class Master's degree in the appropriate discipline or an equivalent qualification from an Indian/Foreign University; (b) a doctorate degree or published work of an equally high standard; (c) about five years' experience of teaching and/or research; (d) capacity to guide research; and (e) Some acquaintance with Computer systems.

Assistant Professor: (a) Consistently good academic record with at least a high second class Master's degree in the appropriate discipline or an equivalent qualification from an Indian/Foreign University; (b) A Doctorate degree or published work of an equally high standard.

Associate Fellow: (a) Consistently good academic record with at least a high second class Master's degree in appropriate discipline or an equivalent qualification from an Indian/Foreign University; (b) some teaching and/or research experience.

Desirable Qualifications for Assistant Professor/Associate Fellow:

Some teaching experience. Post-doctoral research, and familiarity with computers.

Scales of Pay:

(a) Professor/Senior Fellow:

Rs. 1500-60-1800-100-2000-125/2-2500

(b) Associate Professor/Fellow:

Rs. 1200-50-1300-60-1900

(c) Assistant Professor/Associate Fellow:

Rs. 700-40-1100-50-1600 plus usual allowances as are admissible to the members of the staff in the Central Universities.

Relaxation in any of the qualifications may be made in exceptional cases in favour of persons of high academic or professional distinction. It will be open to the University to consider the names of suitable candidates who may not have applied. Due consideration will be given to candidates belonging to Scheduled Castes/Tribes for faculty positions at the level of Assistant Professor/Associate Fellow.

Benefits of C.G.H.S., and C.P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-cum-Gratuity are available.

The selected candidates will be expected to participate in the teaching and research programmes in the disciplines concerned in other Schools of the University as well as in the programmes offered in their own Centres of Studies.

Normally appointments of Senior Fellows, Fellows and Associate Fellows will be made on contract basis for a period ranging from one to three years.

The selected candidates could be offered positions in any one of the aforesaid categories depending upon the candidate's academic and scholastic attainments, academic/research background, teaching/research and professional experience in relation to the qualifications laid down in respect of each category of the faculty position.

Both ways second class (mail) rail fair is payable to the candidates who are invited to appear for interview from outside Delhi (for candidates from abroad, from the port of embarkation within the country), by the shortest route, subject to production of rail receipt. Persons already in employment should route their applications through proper channels.

Applications indicating clearly the fields/areas and designation of the post

applied for, on the prescribed form obtainable free of cost from the University by sending a self-addressed stamped envelope of 23 cm x 10 cm size to the Co-ordinator (Academic Affairs), Jawahar Lal Nehru University, New Mehrauli Road, New Delhi-110057, should reach him latest by the 10 December, 1976.

Candidates from abroad may apply on plain paper (but their applications should reach the University by the last date mentioned above) furnishing all the relevant information such as their names; date and place of birth; marital status; whether belonging to Scheduled Caste/Schedule Tribe; nationality; state of domicile; mailing address; father's name and address; educational qualifications; details of employment, publications and research projects undertaken; language(s) known; visits abroad at least the names and addresses of two persons well acquainted with the candidate's professional work (who should also be asked by the candidate to forward to the Co-ordinator (Academic Affairs), J.N.U., confidential report concerning the candidates.

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O.I.I.T., Powai, Bombay-400076

Advertisement No. 851/76

Applications in the prescribed form are invited for the faculty positions of Assistant Professor and Lecturer in the following areas in the Mechanical Engineering Department of the Institute.

Assistant Professor:

Scale of Pay: Rs. 1200-50-1300-60-1900.

Qualifications and Experience:

Good Master's degree in the appropriate field. Minimum 5 years experience in teaching/research in an Institution of a University standard or Industry. Specialised knowledge, in one or more specified fields. Doctorate degree desirable. Experience of carrying out independent research and guiding research desirable.

Lecturer:

Scale of Pay: Rs. 700-40-1100-50-1600.

Qualifications & Experience:

Good Master's degree in the appropriate field with not less than 2 years teaching/research or industrial experience. Doctorate degree desirable.

Fields of Specialisation:

- (1) Industrial Engineering
- (2) Production Engineering (Machine Tools & Metrology; Metal casting; Welding)
- (3) Fluid Power
- (4) Energy Conversion (Thermal Power; I.C. Engineering; Nuclear Power)
- (5) Machine Design (Mechanisms, Vibrations, Tribology)
- (6) Cryogenics

Candidates should give an account of their academic and professional record,

list of research publications, fields of specialisation etc. Candidate will be considered either for the post of Assistant Professor or Lecturer commensurate with his qualifications, experience and contributions in the related field.

The posts are permanent and carry allowances such as DA, CCA, HRA as per rules of the Institute which at present correspond to those admissible to Central Govt. employees stationed at Bombay. The Institute has two retirement schemes viz. Contributory Provident Fund-cum-Gratuity or General Provident Fund-cum-Pension-cum-Gratuity. Age of retirement is 60 years. Candidates called for interview will be paid II class rail fare from the place of their residence to Bombay and back by the shortest route. Applications should be made on the prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed envelope of 23 cm x 10 cm size. Indian candidates abroad may apply on plain paper (in duplicate). Candidates employed in Government/Semi-Government organisations or educational institutions should apply through proper channel. Completed applications should reach the Registrar, I.I.T., P.O. I.I.T., Powai, Bombay-400076, by 25th November, 1976.

PANJAB UNIVERSITY

Chandigarh

(Advertisement No. 21/76)

Applications are invited for the post of Registrar, Panjab University, Chandigarh, in the pay-scale of Rs. 1500-60-1800-100-2000 plus allowances and benefit of Provident Fund. The appointment is substantive and the term of office shall be, in the first instance, for a period of four years. Other terms and conditions relating to the appointment and functions of the Registrar are as contained in Chapter I at page 12 and Chapter III at page 118 of the Panjab University Calendar, Vol. I, 1975.

Qualifications:

Master's degree of a recognised University or its equivalent qualification with at least 10 years' administrative experience in a University or an educational institution.

Application forms could be obtained from the office of the Finance & Development Officer, Panjab University, Chandigarh, on a written request with a self-addressed stamped envelope of 23 x 10 cms.

Applications accompanied by Indian Postal Order of Rs. 7.50 should reach the Secretary to the Vice-Chancellor, Panjab University, Chandigarh, by 30th November, 1976.

Those who applied in response to this University advertisement No. 9/76 need not apply again.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Agrawal, Ramesh Chandra. Travel times for the Indian region. B. N. Chakravarty University.
2. Basu, Biranjan. Certain flow problems in magneto-hydrodynamics. University of Burdwan.
3. Bhati, Shyam Sunder. A study of generalized hypergeometric function and certain sets of polynomials. University of Jodhpur.
4. Bhola, Dushyant Kumar. Some growth problems of entire Dirichlet series and entire functions of several complex variables. University of Jammu.
5. Borkakoty, A. K. Free convection flow. Dibrugarh University.
6. Behram Datt. On extremal properties and location of zeros of polynomials. I. I. T., Delhi.
7. Dani, J. S. Discrete groups: Density properties of orbits under discrete groups. University of Bombay.
8. Dhal, Nikunja Bihari. Summability of fourier series. Sambalpur University.
9. Goel, Iqbal Rai. Heterogeneous queues. B. N. Chakravarty University.
10. Gopal Prasad. Lattices in semi-simple groups over local fields. University of Bombay.
11. Hebbare, S. P. Rao. Some combinatorial problems in Block designs and graphs. I. I. T., Bombay.
12. Jain, Daulat Ram. A topological study of the spaces of entire functions over non Archimedean fields. University of Delhi.
13. Jain, Sumita. Lie theory and generating functions. I. I. T., Delhi.
14. Jyoti Chandra. Some problems in hydrodynamic and hydromagnetic stability. University of Bombay.
15. Kadalhazoo, M. K. Numerical solution of some non-linear problems by invariant imbedding. I. I. T., Bombay.
16. Man Singh. Study of some queueing problems. B. N. Chakravarty University.
17. Mange Lal. Two dimensional problems in second order elasticity plane stress case. Kanpur University.
18. Sahoo, Dhruva Charan. Some unsteady flow problems in a second order liquid. Utkal University.
19. Sridhar, C. R. Analysis of some multi-item inventory problems. I. I. T., Bombay.
20. Srivastava, Brij Mohan Lal. A study of special functions of one and two variables with some applications. Awadhesh Pratap Singh University.

Statistics

1. Borthakur, Arun Chandra. A study of some queueing models. University of Gauhati.
2. Dua, Saroj. Restricted random walk. University of Delhi.
3. Mittal, Prakash. Some generalized discrete distributions and their properties. Meerut University.

Physics

1. Adgeonkar, Chandrashekhar Shankarrao. Microwave absorption and NMR relaxation study of some organic liquids. Nagpur University.
2. Agrawal, V. K. A co-preserving analysis of neutral K meson decay. I. I. T., Kanpur.

3. Banerjee, Parameswar. Studies on multiloop phase locked demodulators. University of Burdwan.
4. Banmali. Investigations of coupled microstrip line parameters. Sri Venkateswara University.
5. Bathla, Harbans Lall. Theoretical investigations of the energy gain of the ions from the R.F. fields and design of an aperiodic R.F. mass spectrometer. Meerut University.
6. Bhadra, Kalidas. Atomic collision with ions and electrons. University of Calcutta.
7. Bhan, Krishen Kumar. Beam shaping of some primary microwave radiators. University of Delhi.
8. Bhatnagar, G. S. Studies in image evaluation. I. I. T., Delhi.
9. Buta Singh. Frequency and temperature dependence of the dielectric properties of materials. Punjabi University.
10. Chakradhar, Prabodhchandra. Chemical effects in X-ray spectra. Nagpur University.
11. Chopra, Krishan Kumar. Lattice dynamics and thermophysical properties of some solids. Meerut University.
12. De, Isha. Optical and magnetic properties of the compounds of transition metal ions. University of Calcutta.
13. Deka, Akhil Kumar. A study of the nuclear structure properties using a soft-core realistic N-N potential. Dibrugarh University.
14. Gangopadhyay, Asim Kumar. Some aspect of neutron interaction with nuclei at 14 MeV. University of Calcutta.
15. Ghosh, Debasis. On the relative isotopic abundances of some natural gas components emanating from thermal springs of India in the context of exploration of helium. University of Calcutta.
16. Gupta, Prabhat Kumar. Microwave generation with solid devices. University of Calcutta.
17. Haq, Rizwan. Application of distribution methods symmetries in nuclei. Gujarat University.
18. Kondawar, Vivek Kesharao. Study of matter by X-rays: X-ray spectroscopic investigation of chemical bonding in some intermetallic compounds of cobalt. Nagpur University.
19. Manohara Murthy, N. Ultrasonic studies in aqueous non-electrolytes. Sri Venkateswara University.
20. Mukhopadhyay, Ajaykumar. Electric and magnetic properties of natural crystals of hematite and ilmenite. University of Calcutta.
21. Muralikrishna, P. Studies in equatorial aeronomy. Gujarat University.
22. Nair, P. V. N. Studies on some aspects of growth of condensation nuclei in the atmosphere. University of Bombay.
23. Nana Rao, Sanka. Ultrasonic absorption studies in liquids. Andhra University.
24. Nand Lal. Solid state track detectors-Annealing behaviour and geochronological studies. B. N. Chakravarty University.
25. Narasimhacharyulu, E. Spectral and cross-sectional studies of gamma rays scattered by K-shell electrons. Osmania University.
26. Narasimha Rao, V. V. R. Studies in solid state physics: Thermoelectric power measurements in thin films of silver and copper. Sri Venkateswara University.
27. Natarajan, S. Studies on thermoelectrets of plastics. University of Poona.
28. Pal, Bharati. Investigation on non-elastic interaction of 14 MeV neutrons. University of Calcutta.

29. Palit, Amitabha. Studies on fault detection and diagnosis in combinational networks and synthesis of reliable sequential machines. University of Calcutta.
 30. Parihar, J.S. Vibrational and electronic spectra of certain polyatomic molecules. I.I.T., Kanpur.
 31. Parikh, N.K. Ionospheric electron densities and their variations. University of Gujarat.
 32. Parui, Debaprasad. On some aspects of semiconductor lasers and related features of degenerate semiconductors. University of Calcutta.
 33. Patil, Ranganagoud Laxmanagoud. Dielectric behaviour under different physical conditions of some organic esters and some of their mixtures in solution at 9214 MHZ. Karnatak University.
 34. Poddar, Alok. Crystal and molecular structure of biologically important compounds. University of Calcutta.
 35. Ranga Rao, D.S. Infrared intensity studies of liquids and liquid mixtures. I.I.T., Bombay.
 36. Ray, Pabitra Kumar. Some studies on microwave propagation in nickel powder, artificial dielectrics and microwave technique for the measurement of semiconductor parameters. University of Calcutta.
 37. Rindhani, S.D. Study of some asymmetries due to higher order electromagnetic and weak interactions. I.I.T. Bombay.
 38. Saha, Balaram. Studies on ionospheric propagation of LF Radio signals from field strength measurement at Calcutta. University of Calcutta.
 39. Satyanarayana Reddi, Malireddy. Quadrupole moments of heavy deformed nuclei and the study of Eu and Tm isotopes. Andhra University.
 40. Sen, Kanika. Charge transfer and excitation in atomic collisions. University of Calcutta.
 41. Shalgaonkar, Chandrakant Shankar. Some luminescence studies of CaS phosphors Co-activated with Bi³⁺ · Dy³⁺ Shivaji University.
 42. Suri, Ritu. Electron transport properties of copper and dilute Cu-alloy films. I.I.T., Delhi.
 43. Vyas, Amar Dutt. Dielectric relaxation of some organic molecules at microwave frequencies. University of Jodhpur.
 44. Vyas, Arvindkumar Ramanlal. Study of bismuth-antimony alloys single crystals. M.S. University of Baroda.
 45. Wadhawan, V.K. Crystal structure studies on compounds of pharmacological interest. University of Bombay.
- Chemistry**
1. Arvind Kumar. Chemistry of some interesting monocyclic and bicyclic systems. I.I.T., Kanpur.
 2. Bagchi, Manjusri. Coordination chemistry of molybdenum. University of Calcutta.
 3. Bankar, Namdeo Shioramji. Studies on terpenoids. Nagpur University.
 4. Bansal, Om Prakash. Heterocyclic compounds of potential medicinal interest-Synthesis of some benzothiazole derivatives as potential anti-inflammatory agents. B. N. Chakravarty University.
 5. Bapanaiah, Kotha Venkata. Some kinetic and analytical investigations of thiocyanate. Andhra University.
 6. Basishtha, Sunilranjan. Studies on the chemical stability low melting borosilicate glasses in aqueous phase. University of Calcutta.
 7. Bhargava, Girdhar Gopal. Studies on the chemical constitution of salai gum. Meerut University.
 8. Bhatt, M.H. Synthesis of compounds of medicinal interest. Gujarat University.
 9. Bhatta, Suresh Chandra. Studies in the synthesis of new coumarins, 2-aroyl benzofurans and analytical reagents. Awadhesh Pratap Singh University.
 10. Bhowmick, U.N. Chemical investigation on *ervatamia heyneana* (Cook.) I.I.T., Bombay.
 11. Biswas, Snigdha. Organic reagents in inorganic analysis. University of Calcutta.
 12. Chakrabarti, Kalyan Kumar. Thermal studies of reclaimed rubber system. University of Calcutta.
 13. Chaudhuri, Muktimay. The chemistry of lanthanons. University of Calcutta.
 14. Choudhary, Blirai Ichchharai. Studies in hydrogen bonding. Indore University.
 15. Das, Nikhilendusekhar. Studies in the complex compounds of some non-transitional metals. University of Calcutta.
 16. Devandhar, Ramesh Shankar. Synthesis of heterocyclic compounds. University of Poona.
 17. Dhadke, P.M. Studies of some transition metal complexes of a benzylmonoxime. University of Bombay.
 18. Ganguly, R.N. Structure and genesis of antipodal terpenoids. I.I.T. Bombay.
 19. Garg, Anil Kumar. Physico-chemical studies on some rare-earth complexes with nitrogen containing ligands. Meerut University.
 20. Giri, Venkatachalam Shesha. Chemical investigation of *Vinca elegantissima* Hort and *Maesa Chisia* D. Don. University of Calcutta.
 21. Gujar, Kantilal Balaram. Studies in syntheses and evaluation of polyurethane polymers (Rigid foams). University of Poona.
 22. Gupta, Suchitra Sen. Corrosion of metals by chlorinated solvents. Kanpur University.
 23. Irani, Rustom Khodadad. Studies in carbohydrates. University of Poona.
 24. Jain, Shashi. Kinetics of oxidation of citric acid and maleic acid by chromic acid. Awadhesh Pratap Singh University.
 25. Jai Singh. Study on the chemistry of transition metal complexes of 2,4-dihydroxy-valerophenone and its oxime. Meerut University.
 26. Joardar, Durgasankar. Studies on sulfur bonded metal complexes. University of Calcutta.
 27. Joshi, Vidya. Chemical investigation of medicinal plants: Studies in natural products and synthesis of benzopyrone derivatives. University of Bombay.
 28. Kandlikar, Sushama. A kinetic study of some condensation reactions. Osmania University.
 29. Khamrui, Dilip Kumar. Kinetic studies on the oxidation of some organic compounds by tri- and hepta-valent manganese. University of Calcutta.
 30. Khopkar, P.K. Solvent extraction and complex formation of trivalent lanthanides and actinides. University of Bombay.
 31. Krishan Avtar. Isolation and preparation of some pharmacodynamic pyrrolizidine alkaloids. University of Jammu.
 32. Kushma Devi. Chemistry of plant products. University of Saugar.
 33. Madhu Sudhana Rao, Alapati. Novel hydroxy furofurans from *Gmelina* species and synthesis of justicidin E and Tai-Wanin-C. Andhra University.
 34. Majumdar, Sujit Kumar. Studies on soil organic matter. University of Calcutta.
 35. Manlik, Satyapriya. Flow behaviours with reference to electrofiltration and conductance. University of Calcutta.
 36. Mhaske, Tejrao Himmatrao. Potentiometric studies in some binary and ternary complexes of praseodymium (III). Nagpur University.
 37. Mishra, Umesh Chandra. Potentiometric studies of some electrolytes in dioxane-water mixtures. Utkal University.

38. Mondhara, Girdher Lal. Adsorption studies on a few acidic basic organic compounds in relation to column chromatography. Ravishankar University.
 39. Nagabushan, V.S. 3-methyl histidine metabolism in relation to growth and protein nutrition. Bangalore University
 40. Naik, H.A. Heterocyclic studies. University of Bombay.
 41. Nana Babu, G. Preparation and properties of organosilicon monomers and polymers. I.I.T., Delhi.
 42. Narendra Kumar. Studies on the preparation and characterization of some organometallic compounds of thallium (III). University of Delhi.
 43. Natu, Arvind Anant. Studies in isoprenoids and their rearrangement. University of Poona.
 44. Nigam, Vinod Kumar. Studies on passive films formed on metals in inhibitor solution. Kanpur University.
 45. Nikay, Keshav Ramchander. Synthesis of dike to carboxylic esters and their reactions. Indore University.
 46. Pachauri, Prem Chandra. Stereochemical features vis-a-vis spectral and magnetic data of some metal complexes derived from Schiff bases. Meerut University
 47. Pandey, P.N. Chemistry of strained polycyclic systems. I.I.T., Kanpur.
 48. Patel, J.C. Studies in hydraulic conductivity in soils of South Gujarat including infiltration rates. Gujarat University.
 49. Patil, A.R. Studies in heterocyclic compounds. University of Bombay.
 50. Patil, Basavaraj Rayanagouda. Studies on coordination compounds. Karnatak University.
 51. Rajan, V.P. Chemistry of some 1,3,5-triazine-2-thiols and related compounds. University of Kerala.
 52. Ramachandran, C. Spin probe studies on the effect of solutes on the structure of water. I.I.T., Kanpur.
 53. Ramanih, Parimi Archuta. New lignins from *Cleistanthu collinus* (Roxb.) and chemical examination of *phyllanthus* species. Andhra University.
 54. Raman, Vasantha. Studies on thorium compounds. I.I.T., Delhi
 55. Rameshwar Dayal. Chemical investigation of some Indian medicinal plants and syntheses of some new prenylated flavonoids. University of Delhi.
 56. Rane, K.S. Studies on molybdenum oxide catalysts. I.I.T., Bombay
 57. Rao, P.G. Investigations of some natural pyrrolizidines and preparation of their synthetic derivatives. University of Jammu
 58. Sarma, Nittala Subrahmanya. New physalins from *physalis* species. Andhra University
 59. Sarma, Vongula Venkatappaiah. Studies on the Solvent extraction of vanadium (IV) in the presence of some anions and neutral donors. Andhra University.
 60. Sathyamoorthy, A. Thermoluminescence of solids. University of Bombay
 61. Satyanarayana Murthy, G.S. A kinetic study of some aspects of oxidation of organic compounds V^{5+} . Osmania University
 62. Sehgal, Yash Paul. Solute solvent interaction in solutions of electrolytes in glycols. Himachal Pradesh University.
 63. Sharma, Satish Kumar. Mechanism of oxidation by chlorine. Meerut University.
 64. Sharma, Thakar Datt. Some photoadditions and photorearrangements. B.N. Chakravarty University.
 65. Sharma, Triloki Nath. Studies on alpha-galactosidases: Characterization of the multiple forms of alpha galactosidase from plants. Meerut University.
 66. Shastri, Ranjan Kesha. Phenolics of the heartwood and bark of some Indian forest trees. University of Poona.
 67. Sud, Ram Gopal. Fused monochloro acetic acid as a non-aqueous solvent. Himachal Pradesh University.
 68. Suri, O.P. Chemical studies on pyrrolizidine alkaloids. University of Jammu.
 69. Tatke, D.R. Heterocyclic studies. University of Bombay.
 70. Tiwari, Brij Mohal Lal. Studies on blue perchromate prepared with monochloroacetic acid. Awadhesh Pratap Singh University.
 71. Tiwari, Narayan Prasad. Kinetics of oxidation of some nitrogenous Compounds (Ethanololamines) by chromic acid. Awadhesh Pratap Singh University.
 72. Vaidya, V.S. Studies in environmental pollution. Gujarat University.
 73. Vajendra Pal Singh. Studies on the reactions of some anils with transition metal ions. Meerut University.
 74. Vishe, G.B. Studies in cellulose solutions. University of Bombay.
- ### Earth Sciences
1. Basu, Pratap Chandra. Sedimentary environment of phosphorite formation of Jhabua District, Madhya Pradesh. University of Delhi.
 2. Bhaskar Reddy, B.N. Chandra. Some studies on the littoral black sand placers of Southern India. Sri Venkateswara University.
 3. Gwalani, L.G. Petrology of the Malwa traps and the associated rocks. Dudha-Naswadi sector, Baroda District, Gujarat. University of Bombay.
 4. Mankad, M.R. Studies in ground waters including hydrogeochemical indices for prediction of oil fields. Gujarat University.
 5. Narasimha Rao, Durvasula Venkata Lakshmi. On the development of scientific flood forecasting system with special reference to two Indian catchments. Andhra University.
 6. Panchapekesan, V. Mineralogy and geochemistry of sulphide deposits of Ingladahatu. Chitradurga District, Karnataka. I.I.T., Bombay
 7. Sharma, Kewal Krishan. Geology of parts of Bhilwara and Udaipur Districts, Central Rajasthan, India, with special reference to pegmatites and their rare metal mineraliation. University of Delhi.
 8. Vaya, Vijay Kumar. Sedimentology of the Gondwanas and petrography of the coal around Johilla valley coalfields, South Rewa, M.P. University of Saugar.
- ### Engineering & Technology
1. Agrawal, S.B. Analysis of shell-beam systems by discrete energy and finite element methods. I.I.T., Bombay.
 2. Anil Kumar. Nonlinear analysis and experimental investigation of reinforced concrete frames. I.I.T., Delhi.
 3. Bandyopadhyay, Asim Kumar. Permanent oxidation of coal and its structural implications. University of Calcutta.
 4. Bhattacharya, P.K. Studies on the modifications of conventional kraft recovery process. I.I.T., Bombay.
 5. Chowdhury, Ranajit. Studies of mixing of high viscosity Newtonian and non-Newtonian liquids using helical impellers. University of Bombay.
 6. Desai, M.D. Synthesis of disperse dyes. University of Bombay.
 7. Godhrawala, Nazir Sajjad. Fluid sand process. University of Poona.
 8. Gujarathi, J.H. Oxidation of sulphur dioxide in high concentrations with vanadium catalyst in fluidized bed. I.I.T., Bombay.
 9. Gupta, R.K. Studies on heat transfer and friction characteristics of high performance heat exchanger tubes. I.I.T. Bombay.
 10. Gupta, S.K. Some problems in fluid mechanics. I.I.T., Bombay.

11. Juvekar, V.A. Studies on mass transfer in gas-liquid and gas-liquid-solid systems. University of Bombay.
12. Kameswara Rao, Chellapilla. Torsional vibrations and stability of thin-walled beams of open section resting on continuous elastic foundation. Andhra University.
13. Krishnamoorthy, M.S. Design and analysis of graph algorithms. I.I.T., Kanpur.
14. Malshe, V.C. Production of acrylic acid and its esters. University of Bombay.
15. Muju, M.K. Effect of magnetic field on wear. I.I.T., Kanpur.
16. Nath, P.K. Kineto-elastodynamic analysis of high speed mechanisms. I.I.T., Kanpur.
17. Patkar, G.G. Synthesis of reactive and disperse dyes. University of Bombay.
18. Ranga, K. An optimal engineering planning model for water resources development. I.I.T., Kanpur.
19. Sant, S.K. Two dimensional diffusion of heated wall jet in open channels. I.I.T., Bombay.
20. Sarkar, Sunil Kumar. Investigation into convergence at long wall faces and in gate roadways. University of Calcutta.
21. Sudhakara Reddy, K. Studies of the state and parameter estimation in distributed systems. I.I.T., Delhi.
22. Tandon, Shri Nath. Evaluation of physical and physiological factors affecting electrical conduction fields in the human body. I.I.T., Delhi.
23. Tiwari, R.K. Studies in alkylation and oxidation of aromatic hydrocarbons. University of Bombay.
24. Vaidyanathan, T. Heterocyclic disperse dyes and dye-intermediates. University of Bombay.
25. Vashishtha, R.P. Physico-chemical studies on complexes of some elements of groups VI-B with organic acids. Bhopal University.

BIOLOGICAL SCIENCES

Biochemistry

1. Patil, Trushakant Narayanrao. Biochemical changes induced by some selected rodenticides. Nagpur University.

Botany

1. Bhansali, Ashok Kumar. Monographic study of the family rhamnaceae of India. University of Jodhpur.
2. Chauhan, Yashwant Singh. Partial diallel analysis in Indian mustard, *Brassica juncea* (L.) Czern and Coss. Kanpur University.
3. Datta, Subodh Kumar. Cytogenetical studies in *Trichosanthes anguina* Linn. University of Calcutta.
4. Desai, Mahendrakumar Jivanji. A contribution to the flora of Bansda forests (South Gujarat). South Gujarat University.
5. Harsh, Laxmi Narain. Distribution of biomass and nutrients in the ephemerals of desert ecosystem. University of Jodhpur.
6. Koppur, Keshav Krishna. Histochemistry of reproductive structures in some members of cruciferae. Karnatak University.
7. Mahalingappa, M.S. Embryological studies in some members of gramineae. Karnatak University.
8. Meria, Ram Singh. Studies on the floristic composition in the extreme regions of Rajasthan. University of Jodhpur.
9. Pandey, S.N. A synopsis of the thesis entitled histochemical studies during the reproductive cycle of *Limnophyton obtusifolium* (L.) Miquel. Gujarat University.
10. Rani Prasad. Biological studies on some forests of Gourbhamar Range. University of Saugar.

11. Rabana Begum. Studies on leaf composting, fungal succession and cellulolytic activity with reference to *Sorghum Vulgare* Pers and *Arachis hypogaea* Linn. Osmania University.

12. Shahja Nand Singh. Fractional diallel analysis of some quantitative characters in brinjal, *Solanum melongena* L. Kanpur University.

13. Singhvi, Dhanpat Mal. Cytotaxonomy and effect of chemical compounds on nuclear division structure and behaviour of chromosomes on a few genera of compositae and liliaceae. University of Jodhpur.

14. Tekale, Nagesh Shankarrao. Agronomic studies on leaf protein production. Marathwada University.

15. Vijayakumari, C.M. The shift in the metabolism in blue-green and green algae on exposure to different radiations. Gujarat University.

Zoology

1. Arya, Saiva Narayan. Studies on nematode parasites of fishes of Jodhpur. University of Jodhpur.

2. Chauhan, Anand Singh. Studies on helminth fauna of India with particular reference to trematoda parasites. University of Calcutta.

3. Desai, Janakkumar Haribhai. Studies on the reproductive pattern, growth and certain behaviour of the painted stork *IBIS Leucocephalus pinnatus*. M.S. University of Baroda.

4. Manna, Buddhadeb. Possibility of the use of organophosphorus chemicals, Diazinon and Fenitrothion as gut poison in the control of *Achatina fulica*. University of Calcutta.

5. Mohammed Owais. Sensitivity of the gut of the teleostian fishes, *Clarias batrachus* and *Heteropneustes fossilis*. Bhopal University.

6. Nandakumar, N.V. Macromolecular charges of protein in relation to insulin and enzyme activities in medulla oblongata of sheep brain. Sri Venkateswara University.

7. Norton, S.P. Studies on the variations in uterine mastocells. Bhopal University.

8. Prameelamma, Y. Modulation of selected enzyme activities in the induced denervation atrophy process of the amphibian *gastrocnemius* muscle. Sri Venkateswara University.

9. Ramesh, Kodali Vijaya. Studies on hemiuroidea with special reference to the marine hosts of Andhra Coast. Andhra University.

10. Rathore, Narendra Singh. Aspects of morphology and early breeding biology of termites of Indian desert. University of Jodhpur.

11. Saxena, Shail. Morphology and gross anatomy of *Gavias* (HAM). Bhopal University.

12. Sundari Bai, A. The study on the arthropod parasites of fishes. Bangalore University.

Medical Sciences

1. Ghoshdastidar, Amares. Histological and histochemical studies of prostate gland and its relation with sex hormones. University of Calcutta.

2. Navagari, Shakuntala Suresh. Intracartilagenous bone development. Nagpur University.

Agriculture

1. Bhullar, Balwant Singh. Genetic architecture of protein and other quality characters in wheat. Punjab Agricultural University.

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pouring the hundredth cup of tea,
and sorting out the cheeses and the wines,
he can still break the ice for a lonesome passenger...
he must be an Air-India Flight Purser.**

A stickler for detail, a master of ceremony, with his Assistant Purser, a master of the galley.

Trained in the pleasures of flying, they make a great team. Checking on glasses, the finest liquor, food, liquors. Making doubly sure your steak is sizzling, your martini as dry as the Sahara.

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And all because there is someone very special on board
You, dear passenger.

AI.9630



University news

A CHRONICLE OF HIGHER EDUCATION & RESEARCH DECEMBER 1976 Re. 1.25



Malcolm S. Adiseshiah, Vice-Chancellor, University of Madras, receiving an award from President Fakhruddin Ali, for promoting UNESCO's objective and activities during 1975-76, in New Delhi.

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF DELHI

Adv. No. Estab. IV/38/76.

Applications on the prescribed form are invited for the following posts :

Sr. No.	Department	Designation
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2. Sports Council One Coach

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 - Organisation Theory and Behaviour
- Coach**
 - Competence of Coaching in at least any two of the following games :
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Application (separate for each post) accompanied by attested copies of Degrees, other certificates, mark-sheets, published research articles, etc. should reach the undersigned not later than 10th December, 1976

NOTE 1. It will be open to the University to consider the name of suitable candidates who may not have applied. Relaxation of any of the Qualifications may be made in exceptional cases, in respect of all posts on the recommendations of the Selection Committee

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3. Candidates from outside Delhi for Teaching posts, called for interview, will be paid contribution towards travel expenses equivalent to 14 single Second Class Rail fare

Sd -

(K N Thosur)
REGISTRAR

Delhi-110007
10th November 1976

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE PILANI-333031 INDIA (B. I. T. S.)

Advertisement No. FR 176

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Those who are interested in applying may obtain a booklet containing full details by writing to the undersigned.

Wherever necessary, suitable details can be worked out for unusual avenues on mutual consent. Names of persons may also be introduced by people who are familiar with the high level demands and challenge.

Amar Nath Bhargava
REGISTRAR

UNIVERSITY NEWS

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*A Monthly Chronicle of
Higher Education*

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Opinions expressed in the articles and reviews are individual and do not necessarily reflect the policies of the Association.

Editor : ANJNI KUMAR

Population Education in Universities

V.S. Mathur

Dean, School of Education
Himachal Pradesh University

It is now universally recognised that the accelerating growth of population during the last 4-5 decades has not only greatly affected the socio-economic life of the people in the various parts of the world, but also threatens to completely upset the present economic and social arrangements of society. The menace has assumed greater proportions in the developing countries like India because of an alarmingly higher growth rate there. The very socio-economic stability seems to be in danger in these areas. It is also being increasingly felt that unless the birth rate is cut down at least by half during the coming two decades, the severity of the threat will continue to pose an acute problem for our country. Indifference to the problem will be a tragedy.

Short range and long range programmes of population control have, therefore, assumed increasing relevance. However, whatever shape the programmes may take it is necessary to bring about as a pre-requisite an intellectual realisation of the consequences of unbridled population growth. In this context, population education is being increasingly recognised as a fundamental element at all levels of education.

Speaking generally, the following target groups have to be involved in the educational process.

- (a) Reproductive and near reproductive categories.
- (b) Out of the school youth and adults.
- (c) Students involved in the post-school level of education.
- (d) Students in attendance at the secondary and elementary institutions.

Educational practitioners should be more intimately concerned with the last two categories and as such we have to integrate population awareness as an integral part of formal schooling.

Not much work seems to have been possible at the college or university levels. The Sri Venkateswara University is, to my knowledge, the only university in the country where a regular population study centre (department) has been created to spread in a systematic manner the message of population education. Serious thinking needed, therefore, to initiate strong programmes at all levels in the various parts of the country.

Population education may be divided into the following main themes for this category of persons:-

- (a) Useful background material leading to an understanding of the implications of population growth.

(Contd. on page 28)

Legal Aid Clinic

S.K. Dutta

Legal aid to the poor is not a new concept. There has been provision in the Code of Civil Procedure for Pauper suit, i.e. a person who does not have sufficient means is allowed to file the suit without payment of court fee. If the pauper succeeds in the suit, the Government has the first charge on the subject-matter of the suit for the recovery of the court fee. If the pauper fails in the suit, court orders him to pay the court fee due from him. It will appear that such a provision is hardly of any assistance to a poor person who wants to file a suit. Apart from the court fee there are other fees, for example, fees for service of process, fees for inspection of documents, lawyer's fee etc., from which he is not exempted.

In criminal cases Section 304 of the Criminal Procedure Code provides that where in a trial in the court of Session the accused is not represented by a pleader, and where it appears to the court that the accused has no sufficient means to engage a pleader, the court shall assign a pleader for his defence at the expense of the State.

In recent years it has been realised that all talk of Rule of Law is meaningless unless proper legal aid is given to the poor. An effective legal service programme can be undertaken only by the Government, as the functions of a Legal Aid Clinic in a university are bound to be limited. There are two purposes which such a clinic, established under the auspices of its Law Department, can serve. Firstly, clinical legal education provides an opportunity for practical training to a Law student. It enables him to learn the drafting of legal documents, the art of cross-examination, appreciation of evidence, decision-making etc. It also helps a student to develop lawyer-client relationship.

Clinical work in legal education is not a new thing. Some sort of practical training has been always a part of law syllabus and it has been imparted through moot courts and mock trials. But legal education is mainly theoretical, and it is only recently that the Bar Council of India has begun to stress the practical side of legal education. Unfortunately students do not take legal studies seriously and Law Departments in most of the universities have become the resort of the mediocre. Clinical legal education enlivens the dull class-room lectures and stimulates creative spirit in young minds.

Secondly, clinical legal education can make substantial contribution in the matter of aid and advice to the weaker section of the community.

With a view to achieving these two purposes a legal aid clinic was established in the Kurukshetra University (now renamed as Birendra Narayan

Chakravarty University) and it has been functioning for the last three months or so. It is a very short period to assess the work of the clinic, but the response from persons requiring legal advice and help has been quite good. We gave legal advice to several persons and in most of the cases our attempt has been to bring about a compromise and we succeeded in this in a couple of cases. But our main difficulty has been that a University Legal Clinic is not in a position to help in any follow-up action. If a person has a good case, we may advise him to file a suit. And here comes the snag: he has not the resource to do it. He must have a lawyer to handle the case in court. We have been trying to associate some practising lawyers with our clinic. Unfortunately senior and competent lawyers are not willing to offer their services; they are too busy in their profession. Those who come forward to help are juniors who have neither the experience nor the ability to conduct the cases. Moreover, it is difficult to find a lawyer even among the juniors who is dedicated enough to work sincerely and free of charge. This difficulty is very acute in a place like Kurukshetra in which there is not even a District Court. So it is not possible to get suitable practising lawyers who could be appointed in the Faculty as part-time teachers and who would volunteer to undertake legal aid work in court. There are two remedies for this difficulty. One is to amend the Advocates Act and allow the students of the Final Law class to appear in court under proper supervision of a practitioner who can be a part-time teacher in the Law Department. Alternatively, the Bar Council can make it mandatory for every new entrant to the profession to spend one year of compulsory internship in the university Legal Aid Clinic.

Another purpose which our Legal Aid Clinic can perform is to make the common people conscious of their legal rights. Here we have to proceed very cautiously. To make people conscious of their legal rights is desirable, but this may be interpreted as an attempt to incite them to the assertion of their rights and to bring them into conflict with authority or management. That is why perhaps when I spoke to the Manager of a factory about sending some law students to his factory to explain to the workers the implications of the Workmen's Compensation Act, his response was cold.

In some of the cases received by us there were allegations which were cognizable offences. In such cases we could not do anything else but ask the complainant to go to the police. In some other cases allegations were made without any proof whatsoever. There were cases again in which we refused to help the party on humanitarian grounds. For example, a husband wanted to divorce his wife who used to have fits of insanity. We refused to intervene.

Then there is the question of finance. The university has given a small grant to the Clinic to

The author is Vice-Chancellor, B. N. Chakravarty University, Kurukshetra

(Contd. on page 6.)

Centre for Rural Development

The statement that 'India lives in its villages' is as true today as centuries back. For some time, migration from the villages to the cities was the trend. Disillusionment of the villager in the city has to some extent reversed this trend. All the same, we are confronted with the situation of unseemly 'Vertical Slums' in the city and miserable age-old 'Horizontal Slums' in the village. The question is, have we created conditions conducive to the comfortable living of the villager if he return to the village? The answer is 'No'. The village is in the same state as it was years back. The villager is in a dilemma. Poverty, Squalor and Dirt face him in the village.

The only plausible solution to these ills seems to be the fundamental Gandhian approach to Rural Reconstruction and Development integrating the villagers into the schemes and energising them to identify themselves wholeheartedly with all the measures taken for their Economic Development. The villagers should feel that they are part and parcel of any development programme meant for their benefit so that maximum enthusiasm can be generated in them. What we do for them should be in tune with their way of life and rural setting. Then only we can get the maximum 'Resonance' and 'Response' from them.

Experience of the past has shown that Economic Development must at least run parallel to General Social Development. It can even be said that Economic Development may as well precede Social Development. It is with this philosophy in mind that IIT, Madras has started A CENTRE FOR RURAL DEVELOPMENT (CRD). The emphasis is on transfer of Appropriate Technology available already in a large measure at the Institute to the village to generate immediate employment for the villagers by making use of available raw materials and their proper Management. An energy complex combining Bio-gas, Solar Energy and Wind Power will be set up in the village along with appropriate Water Management. Every effort will be taken to develop the complex in such a manner so that this 'Programme Racket' can be repeated in other villages with the necessary modifications.

It is pertinent to note that the unparalleled economic growth rates achieved by a number of developing countries recently had little or no effect on most of the world's majority of the people who still continue to live in desperate poverty in villages. James P. Grant, President of the Overseas Development Council (U.S.A.) states as follows :

"This realization has stimulated an increasingly insistent theme among leaders as diverse as Indira Gandhi of India, Luis Echeverria of Mexico, Ferdinand Marcos of the Philippines, and World Bank President Robert McNamara, that we need deve-

lopment policies which benefit all strata of the population and not just a favoured minority. Senator Hubert Humphrey has spoken of

...the veritable intellectual revolt among scholars of development who are turning against the long-held view that growth alone is the answer that will trickle benefits down to the poorest majority. (They) start from the proposition that the poorest majority must share in the work of building a nation and must share more equitably in the fruits of development at the outset...greater equity and greater participation, instead of taking a toll on growth, support and reinforce it.

The experience of several less developed countries offer encouraging evidence that an effective mixture of domestic and international policies can create new jobs, increase social services, reduce income disparities, and check population growth—without deterring, and at times even accelerating, overall economic growth. We are learning that if small rural and urban producers and under-employed workers are given access to education, credit, technology, and health services then they too can become highly productive with a high capability for savings and effective investment".

It is hence imperative that the intrinsic and effective development of a country has to start from below, i.e., from the village level up. This alone can be the proper direction of development since about 70% of the people of our land live in the rural sector.

It is essential that the villages are not converted into urban areas by inducing into the villages large scale industries, which are mechanised or automated, on the mistaken notion that one necessarily brings up 'real economic development' by starting more large scale industries. The GNP of the country may increase, but the lot of the villager may mostly remain the same as before. The need of the day is to start labour-intensive small scale industries in the rural sector so that gainful appointment allround the year will be guaranteed for the villagers. Agro-based small scale industries necessarily should take priority since the majority of the villagers are, by their very nature, accomplished in agricultural operations.

The Gandhigram Rural Institute has been doing yeoman service in the matter of rural extension work. It is noteworthy that over half a century they have established perfect understanding and rapport with a large number of villages in their area. The most significant achievement of Gandhigram is the very evident "acceptance" by the villagers themselves of the services rendered by Gandhigram to the rural

sector. However, it would appear that further strides in a notable fashion can be made only if this "acceptance" is capitalised upon and a number of small scale industries are started in all the villages where extension work has been done. No other organisation seems to be in a more fitting position to accomplish this for the following reason :

Inside the campus of the Gandhigram, a good number of small scale/cottage industries have been set up. These units like the Soap making unit, Paper making unit, the Oil unit and a few others are seen to be economically feasible and also profitable. There is no problem of lack of clientele for the products. These industries are not capital intensive but labour intensive so that employment for a large number of persons is guaranteed. What now may be attempted and perhaps what seems to be essential to be attempted is to establish such successful units in the several villages around Gandhigram thereby making the involvement of the villagers more fruitful. This process in itself can be called as 'transfer of appropriate technology' since technology not only involves appropriate machinery but also expertise in management. The expertise in management as well as the appropriate labour intensive machinery required for small scale industries have been systematised successfully by the Gandhigram Institute in the working of their several industries inside the campus.

The Indian Institute of Technology, Madras through its National Service Scheme has made a beginning in creating a climate of "acceptance" by the villagers by adopting a nearby village and concentrating their services in that area. The "acceptance" is seen to be a gradual process. The IIT would not like to wait for starting an almost parallel economic development programme. It is with this in view that a centre for Rural Development has been started in IIT. With the full support of the IIT technological complex and services done by the NSS organisation, it is intended to put through a 'technological complex' at the village in keeping with the characteristics of the place.

Plans and proposals have already been initiated for installing a 1000 cft. Gobar Gas Plant along with a storage arrangement for the same. The gas available will be made use of for the boiler of a Milk Pasteurisation Plant which will be installed at the place. A Dairy farm with individual villagers owning the cattle, but housed in the shed provided by the complex will also be set up simultaneously. The cattle being owned by the individual villagers, who will have the responsibility for feeding, milking etc. will be the medium through which there will be the necessary 'understanding' and 'acceptance' by the villagers of the complex that is being evolved for the economic development of the place. The Gobar Gas will also be used for direct heating and lighting purposes. Necessary engines for pump sets will be worked with the Gobar Gas.

In the next phase, all the houses in the villages will be provided with individual sanitary latrines which will be connected together to a sewage system leading to the site of the complex and bio-gas will be generated out of this. This bio-gas will be mostly used for small scale industries and workshops.

Simple arrangements for making use of Solar Energy without sophisticated machinery will also be made at the place. It is intended to produce distilled water making use of solar energy. The distilled water will be bottled and supplied for use in batteries.

It is also proposed to harness wind power by the installation of improved form of Wind Mill.

Request has been made for the assignment of 50 acres of low lying land near the village. It is intended to put up a Plantain Grove, a Coconut Grove, Cattle Feed Farm, a Mango Grove and the like in this area that will be reclaimed by the NSS volunteers. These would add to the 'diversity' of the complex that is being set up at the place.

It may be seen from the above that what is attempted is 'Economic Development from Below' which is thoroughly based on grassroots at the village level. Economic development will at least run parallel to Social Development.

If all the villages in our country could be brought under such schemes in the near future, possibly we would have set the pace in this matter for other developing countries also. ☐

[Courtesy : IAEA Journal]

(Contd. from page 4)

meet incidental expenses including travelling expense of teachers or students who have to be sent out to make local inquiries. Help from the Government or the University Grants Commission is imperative for an efficient legal aid programme in a university.

We have made a modest beginning. We are encountering various difficulties, no doubt. But we are not disheartened. A new generation of lawyers has to come up who will give the necessary social ideology to the profession. Students should learn to champion the cause of the worker, widow, tiller, consumer and of the humble, but they must at the same time avoid conflict with officialdom. Therefore the task before those who are at the helm of a Legal Clinic in a university is not easy. They have to guide the student properly. A comprehensive scheme of legal service to the indigent will have to be introduced by the Government if the problem has to be properly solved. For effective legal aid it is necessary to revise our laws of procedure, to uproot corruption and to make the police and public servants more responsive to all citizens. A Legal Clinic in a University can hardly do anything in such matters. But the university schemes can be appropriately fitted into the Governmental scheme. In the Law students of the final year class the Government will have a rich source of trained manpower to run the scheme. ☐

Library Education in India

K. S. Hingwe

Formal library education was initiated in India for the first time in 1911, when the late Maharaja Sayajirao Gaikwad of Baroda, specially invited Mr. William Alanson Borden, American Library Science Expert, for the purpose. This was followed by another attempt in 1915, when Mr. A. Dickinson, Librarian, Panjab University, started library science course. Subsequently, Imperial Library (now known as National Library) Calcutta, played its just role in imparting library education in the country. Significant impetus to these attempts was given by the late Dr. S.R. Ranganathan, who introduced library science teaching at the post-graduate level at Madras, Banaras and Delhi Universities. In initial stages library science courses were part-time courses known as Diploma Courses in Library Science. These were subsequently converted into full time Degree Courses.

The post-independence period infused new dynamism in all spheres. This situation resulted in establishing schools, colleges, universities, laboratories, industries and spreading knowledge in masses. Libraries were not exception to this phenomenon. Establishment of hundreds of libraries at different levels, throughout the country, necessitated library science training facilities on a large scale. A review of this situation, suggesting measures to extend, improve, and co-ordinate library education in India was attempted perhaps for the first time by the UGC. The report of the UGC Committee (Dr. S. R. Ranganathan Committee), known as 'Library Science in Indian Universities' published in 1965, had made some novel recommendations. Unfortunately, quite a number of these recommendations have so far remained on paper. A casual reference to library training facilities in India was also made in the 'Report of Advisory Committee for Libraries' (Mr. K.P. Sinha Committee Report) appointed by the Government of India. Importance and the nature of library education in the country has been amply discussed through several Seminars, Conferences, Workshops and articles during last two decades.

A survey of existing library training facilities will reveal that the need for imparting library education at different levels is justified. However, the existing pattern of library education in the country suffer basically from the gap between its content and the actual professional challenges one has to meet, between the techniques taught and changing patterns of library services, between its outdated curricula

and the changes at socio-economic and technological levels. For the last several years we were just tempted to continue the existence of a common pattern more than is warranted by a careful assessment of the library education programmes at different levels. This situation can be aptly described in the words of Mr. Robert, D. Leigh, Chairman, Public Library Inquiry Committee, U.S.A. He observed "at present the library schools are on their own and it is difficult in some cases to see where they are going or whether they are moving at all, except to change the letters symbolizing the professional degree". Current trends relating to library education in India reminds me of Gandhiji's words. He proclaimed "the difference between what we do and what we could do, would suffice to solve most of the world problems".

In the context of unprecedented changes in political, social, cultural, educational spheres and technological advancement, there is an urgent need to have fresh assessment of the current trends in library education in India. The teaching programmes of the library education, including the nature of syllabus, formal lectures, tutorials, discussions, practical programme ought to be in conformity with the objectives of the library education. It has been however observed that library education is being imparted in India, without defining its objectives and neglecting the norms laid down in the matter. Objectives of library education, accepted by majority of experts are cited below :

- (i) library education programme should be more innovative ;
- (ii) library school programmes should be designed to prepare students to anticipate developments, solve problems and adapt to change ;
- (iii) library school graduates of the future should have initiative, dynamism, capacity of work with others and the spirit of service towards fulfilment of social cause.

Major share in imparting library education goes to universities. About 45 universities have introduced library science courses. In the light of the earlier recommendations relating to library education at university level attempts must be made to answer following questions.

- (1) are we adhering to the norms laid down by the UGC Review Committee ?
- (2) if not, what is its impact on the objectives of library education ?
- (3) is there any need to revise the syllabus in the context of new challenges ?
- (4) is there any necessity to adhere to teachers-students formula laid down by UGC Review Committee to make library training more effective ?
- (5) is it not necessary to have adequate and independent staff to give justice to the teaching programme (in some universities one teacher has to cover four or five subjects) ?

- (6) is it not necessary to have well defined syllabus, covering list of prescribed books for all courses, including M.Lib. Course?
- (7) is it advantageous to have any co-ordination between university, library and the library science department? If so, what should be its nature?
- (8) does it exist to-day?
- (9) what factors have affected such co-ordination? Could it be remedied?
- (10) under which circumstances any number of students are being admitted to B.Lib. Courses?
- (11) is the question of medium of instructions has any impact on securing rewarding posts?
- (12) would it be worthwhile for the library science departments to restrict their teaching and research activities to such projects which are library service oriented and whether it would be beneficial to carry out fundamental research in library science in institutions like DRTC?
- (13) would it be feasible to introduce subjects like 'Philosophy of Library Science', 'Organization and Administration' at the level of undergraduate courses, thus permitting more time, for teaching technical subjects like 'Classification' Cataloguing 'Reference Service' Documentation at the B.Lib level
- (14) is it necessary to introduce compulsory internship programme before the degree is awarded?

As regards library training programmes, undertaken by professional associations, government and semi-government agencies it can be said that they too are not free from misgivings. Their efforts are certainly commendable but need to be reoriented. Alike post-graduate courses conducted at university levels, any number of students are admitted to short term course, whose duration ranges from six to twelve weeks. It needs to be evaluated whether more emphasis could be given on practical work at the certificate course level. It should also be seen that no course is allowed to be conducted without satisfactory collection of books on library science, availability of standard reference books in English and regional language of the area and a library, serving as a laboratory for the trainees.

It is learnt that in some States atleast, library education is likely to be introduced at the S.S.C. level as well. In the context of this new development there is an immediate need for the co-ordination of the library education programme throughout the country. Library education is a professional education and is certainly job oriented. It can be compared with medical and technical education. Library education programmes in the country must keep

in mind the requirements of the community as a whole.

Library education in India is also conditioned by emotional factors. It is unfortunately influenced by two extreme ideologies and is not free from prejudices, which are of individual, methodological and ideological character. Teachers of library science must rise above this situation in the interest of wider national cause. Problems relating to library education are not unique to our country alone. These were equally faced by other countries like U.S.A., U.K. and other western countries. What is needed on our part is the dispassionate introspection! Perhaps an appointment of 'National Board for Library Education' on the pattern of 'Indian Medical Council' may pave way for better achievements. ●

Quote-Unquote

—W. D. Miranshah

- Working with student teachers by Florence B. Stratemeyer & Margaret Lindsay: "In addressing classroom teachers not long ago a famous educator said: 'you have the future of the world right in the palms of your hands'"

—the tragedy now is that it's getting of the palm!

- 1001 Media ideas for teachers by Cecil I. Garrison: "The function of educational media is education..."

—which leads to ignorance in as many directions!

- Forward to teach by Francis V. Lloyd, Jr.: "Those who dare to teach must never cease to learn."

—except when they don't dare!

- An inquiry into the uses of instructional technology by James W. Armey and Norman C. Dahl: "Much of the confusion that surrounds instructional technology derives from the ambiguity of its definition."

—therefore, its definition should be altered!

- Teaching machines and programmed learning edited by A.A. Lumsdaine & Robert Glaser: "The purpose of this book is to provide a comprehensive reference source on teaching machines..."

—such as teachers!

Need for non-formal education : PM

The Prime Minister, Smt. Indira Gandhi, in her convocation address of Jamia Millia asked the muslims to remain in the national mainstream and participate more and more in the development of the country. She spoke on the new awakening of the masses and said that every individual must come forward and be involved in this splendid work of national development. New discoveries, new ways of thinking and methods of work provided by science were essential for all. The responsibility for reconstruction of new India was the responsibility of everybody and the minorities should not be left out.

Mrs. Gandhi said that there was dissatisfaction everywhere with the inadequacy of educational institutions. We want to place greater stress on non-formal, non-institutionalised systems of education and on the concept of life long education. She underlined the need to maintain high standards and to aim at excellence in the field of education. She said that there is a tendency to ensure uniformity but it is important to give due consideration to the special needs of regions and sections. We must therefore devise new methods by which children coming from families which have been long deprived of education could compete with the children of middle class and highly literate families and at the same time in the name of egalitarianism our system should not pull back our brighter children.

The Prime Minister said that Jamia Millia Islamia has occupied a special position in the national life and said it was born during the days of struggle for freedom with the express purpose of training people for national independence. It was linked

with the names of Hakim Ajmal Khan, Dr. Ansari, Maulana Mohmad Ali, Maulana Azad and Mahatma Gandhi. The university was identified with the late President Dr. Zakir Husain. The Jamia had pioneered many education experiments and had given attention not only to higher education but to the whole system of education and to adult and rural education. It has symbolised patriotism and the principle of service which Islam had fought for.

Three hundred and fourteen students received their degrees from the Chancellor, Mr. M. Hidayatullah, former Chief Justice of India. Prof. Masud Husain Khan, Vice-Chancellor of the University in his report said that the institution had the proud distinction of experimenting with the use of an Indian language for higher learning in its attempt to reform higher education in its attempt to reform higher education. The Prime Minister announced a special grant of Rs. five lakhs to the university on this occasion.

Relevance of Gandhiji's teachings

Mr. K. K. Viswanathan, Chancellor of Gujarat University, in his 25th convocation address assured the teaching community that their interests would be safeguarded by the State Government while implementing the new pattern of secondary education and the recommendations of the Sen's committee report. The teachers should be paid decent salaries but they should also achieve high academic standards.

In his address, the Governor referred to the relevance of Gandhiji's teachings. He urged the people to work hard to get rid of poverty and ignorance and ensure justice to all sections of society to fulfil Gandhiji's

aspirations. The achievement of freedom was the first of his goals. The consolidation of freedom through economic progress was yet to be achieved. In the field of socio-economic reforms Gandhiji's approach was human and practical. He advocated de-centralisation of industries, encouragement of village and cottage industry and workers participation in management. Gandhiji sought to end private ownership of wealth and property through love and understanding based on principles of trusteeship. He asked the youth of the country to make a serious study of Gandhiji's teachings and try to analyse critically their values and ideas. Such an intellectual approach would be of use for them and to the nation at large. Students should develop a scientific approach to their problems and should have unbiased, inquisitive and inquiring minds dedicated to the pursuit of truth. The scientific approach should always be supplemented by creative thinking. The Governor congratulated the university for paying attention to the many sided education and growth of its students. He appreciated the efforts of the university for instituting various new schools and departments and various job-oriented courses to help the unemployed graduates.

More than 12,000 candidates received their degrees and 68 outstanding students were awarded medals for attaining academic achievements.

Shri I. J. Patel, Vice-Chancellor of the University, informed that the university would soon start courses in textile chemistry from the next academic year.

Planning as a tool of modernisation

Mr. P. N. Haksar, Deputy Chairman, Planning Commission, while addressing the convocation of the Bombay University said

that many problems that confronted the country today arose from the fact that planning and economic policy had to reconcile highly advanced political forms with backward social relations. The role of planning in modernisation would depend on the relationship of politics to society. If the structure of political power reflected the rigid and stagnant pattern of social relationships, then planning would not be an instrument of change but of stagnation. In such a case the planning would seek to mould economic relations to fit the pre-existing pattern of political and social relations. If the political structure was not in harmony or insensitive to the aspirations, stormy conflicts between social forces of continuity and change would arise. Then there was danger that the planning might become irrelevant and futile. He said that no exercise in change which failed to excite the imagination of the people and invoke a response from them would be successful in the long run. What was required was a situation in which politics reflected the interests of the forces of change but was sufficiently in tune with social reality to be able to control it. He called for a frontal attack on outmoded social relations which constrained our various developmental planning, particularly in the field of agriculture and irrigation. A purely techno-economic approach to resource utilisation was inadequate and some direct intervention was required to induce the requisite changes in the relation of production.

Nawab Ali Yavar Jung, Chancellor of the University, conferred the degrees and diplomas to successful candidates in various faculties.

Role of universities in national development

Prof. R.C. Paul, Vice-Chancellor, Panjab University while inaugurating a three day seminar on the role of universi-

ties in national development at Guru Nanak Dev University, Amritsar, said that universities should examine their role in relation to scientific, industrial and technological problems of the country. The democratic culture and problems of the millions who may not be in a position to get the benefit of university education should also be kept in mind by the intelligentsia who need not remain confined to the four walls of the universities. He said that the university community owes an unestimated debt to the nation. The university should realise their responsibility to the nation. The universities have always been a source of ideas in order to change the perspective of thinking in the context of the changing pattern of the society. The universities must give purposeful education to students since India is undergoing a transformation from a purely agricultural nation into an industrial and technological advanced country. Universities must take a lead in order to provide technical and vocational education without detriment to their specific role in imparting general and basic culture.

Delegates from Punjab Agricultural University, Ludhiana, Himachal Pradesh University, Simla and from the Universities of Kashmir and Jammu, Haryana Agricultural University, Hissar, B. N. Chakravarty University, Kurukshetra and Universities of Patiala, Chandigarh and Amritsar also participated in the discussions.

The majority of the social scientists focussed their attention on problems of producing men and women by the universities who could serve the needs of the economy and shoulder responsibility in every sphere of life with competence and devotion. The integration of university education with the rural life of the country and also upholding of values, such as, truth and humanism, was emphasised. The need for the integration of the skill of heart and mind and to solve the problem of population

through family planning should also form a part of the responsibility of the university education. Most of the delegates participating in the discussions emphasised that applied research should be encouraged, and should be relevant to the requirements of industry and agriculture. The application of technology for the betterment of society must be a key-goal of the university education besides other values related to human experience, civilisation and culture.

Personal

1. Dr S.K. Mukherjee has taken over as Vice-Chancellor of Calcutta University
2. Dr. M.L. Dhar has been appointed Vice-Chancellor of Banaras Hindu University.
3. Mr M.L. Dwivedi has been appointed Vice-Chancellor of Gujarat Ayurveda University.
4. Prof H.S. Chaudhary has taken over as the Vice-Chancellor of Gorakhpur University.
5. Dr. P.D. Hajela has been appointed Vice-Chancellor of Allahabad University.
6. Dr. D.C. Misra has taken over as the Vice-Chancellor of Sambalpur University.
7. Prof. J.S. Bajaj of All-India Institute of Medical Sciences has been nominated on the executive board of the International Diabetic Federation in his personal capacity for his contribution to diabetic research and for organising the successful ninth congress of the federation in India.

National Seminar on Correspondence Education

The Punjabi University, Patiala, in collaboration with Indian Universities Association for Continuing Education, organised a national seminar on correspondence education. Twenty three delegates including Directors and teachers of correspondence courses and academics representing seventeen universities attended the seminar.

Dr. Amrik Singh, Secretary, Association of Indian Universities, in his keynote address stressed the need for rationalisation of facilities for the correspondence courses, development of an overall perspective of the form of education through correspondence as well as the concept of an open university. Mrs. I. K. Sandhu, Vice-Chancellor of Punjabi University, in her inaugural address stressed the need for careful assessment of social needs and national requirements for helping the development of job-oriented and vocational courses being conducted through correspondence with a view to provide inservice training to people engaged in different vocations so as to improve their knowledge, skill and efficiency. The Punjabi University, she said, had given a lead in starting a number of vocational courses also through correspondence. The university department of business management was even offering a full-fledged Master of Business Administration course besides several other correspondence courses for diplomas and certificates in various aspects of business administration. She pleaded for involving certain innovative features in order to make teaching through correspondence more meaningful.

Prof. Bakhshish Singh, Director of the seminar, underlined the need for a continuing process of assessment and evaluation of the system of corres-

pondence education so that it might not lapse into a conservative method of education. He stressed the need for introducing a variety of courses of inter-disciplinary and vocational nature. He suggested the institution of survey units which should have close and continued liaison with industries, business houses, government departments, social organisations, schools and colleges.

The seminar made the following recommendations :

1. There should be periodical reviews of Correspondence Courses Institutes.
2. The Universities concerned and the U.G.C should ensure that a proper survey of the needs of the area is carried out before allowing the establishment of a new Institute of Correspondence

Courses. The proposals of the Universities already offering certain correspondence courses for starting new courses should also be examined after carefully assessing the needs of such courses.

3. Correspondence Courses should be broadbased to include job-oriented, inter-disciplinary courses, continuing education courses, inservice training courses in different subjects, as also technical courses such as Engineering, Medical etc. The seminar is of the opinion that Correspondence Courses and Continuing Education Courses should form an integrated system.
4. Universities which do not offer correspondence courses should explore the possibility of using course material of other universities which have correspondence courses institutes.



Prof. Bakhshish Singh, Director, Punjabi University, speaking at the Seminar. Also seen in the picture are : Dr. Amrik Singh, Secretary, AIU and Mrs. I. K. Sandhu, VC, Punjabi University.

5. The Universities having Directorates/Institutes/Schools of Correspondence Courses should have a Faculty of Correspondence Education and the Directors/Principals : Readers/Associate Directors/Deputy Directors & Lecturers/Assistant Directors must be treated at par with Professors, Readers & Lecturers respectively for all purposes. The Faculty of Correspondence Education should be responsible for the over-all development of Correspondence Courses. The teachers of Correspondence Courses must be borne on the strength of the Directorate/Institute/School of Correspondence Courses and the posts of Junior Lecturers/Instructors/Tutors should be upgraded and redesignated as Lecturers. The Correspondence Courses Institutes should be treated as full-fledged university departments and the teachers should be designated as Professors, Readers and Lecturers. Each Department in the Correspondence Courses Institutes should be headed by a Reader and have two to three Lecturers. There should be provision for senior positions also in subjects where Postgraduate correspondence courses have been instituted.
6. Regular and frequent Workshops/Seminars/Conferences etc. should be organised for the training and updating of Correspondence Courses teachers.
7. Considering the difficulties of Correspondence Courses students in not having access to Library facilities etc. the seminar strongly feels that course material for the postgraduate students should be fairly comprehensive and not just in the form of guidelines.
8. Surpluses of Correspondence Courses Institutes, if any, should be used for the development and streamlining of correspondence courses and not diverted to general university funds.
9. Central Government and the State Governments should be requested that the students of correspondence courses who come from weaker sections of society should be treated at par with such students of regular colleges or universities and the same facilities of fee concessions and scholarships be extend to them also.
10. The University Grants Commission and the Indian Universities Association for Continuing Education should request the Ministry of Information and Broadcasting to extend Radio/TV programmes for Correspondence Courses students. Efforts should be made to develop common programmes for students of different correspondence courses institutes in social sciences etc. where there is so much common ground to be covered.
11. The University Grants Commission should give special grants to the Correspondence Courses Institutes for setting up their own printing units, extension of buildings and strengthening of library cum-study-centres.
12. The University Grants Commission and allied bodies should be requested to allow the Universities offering Correspondence Courses to establish Evaluation and Statistics cells for carrying out research on different aspects of Correspondence education and to collect and compile relevant data.
13. In order to curb the evil of coaching academies and "teaching shops", the Universities should be advised not to throw open their doors indiscriminately to allow all types of candidates to appear privately at the various University examinations.
14. Having considered the UGC guidelines for Correspondence Courses at the Postgraduate level and in the light of the experience of the Institutes running Postgraduate Correspondence Courses, the National Seminar strongly recommends that the academic responsibility of running postgraduate correspondence courses should rest with the Directorates/Schools/Institutes of Correspondence Courses. For this purpose, in terms of the UGC guidelines, the Institutes should constitute Subject Committees comprising:
 - (i) Representatives of the University teaching departments concerned.
 - (ii) Representatives of the Directorate/Institutes/School of Correspondence Courses.
 - (iii) Representatives of the teachers working in postgraduate colleges.

The Director should be the Convener of the Subject Committees.
15. For teaching at the Personal Contact Programme the Correspondence Courses Institutes should pay Rs. 25.00 per period for undergraduate classes and Rs. 40.00 per period of postgraduate classes.
16. Correspondence Courses teachers should be governed by Government of India rules for working on Sundays or holidays and get compensatory leave in lieu thereof.

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Recommendations of National Commission on Agriculture

A meeting of the Executive Committee of the Indian Agricultural Universities Association was held under the chairmanship of Dr. G. Rangaswami, Vice-Chancellor, Tamil Nadu Agricultural University, at Kanpur. Amongst various subjects discussed the most important was the consideration of the report of the national commission on agriculture which was submitted to the Parliament recently. The Association generally endorsed the recommendations of the commission. With regard to the research activities in the States, it suggested that the term 'adaptive research' may not be used as it was likely to cause confusion and may lead the State Governments to withdraw some of the research stations already transferred to the agricultural universities. The Association therefore preferred to use 'field verification trials' in place of 'adaptive research'. It was observed that in Uttar Pradesh all the regional research stations have been retained by the State Government and also new stations for carrying out research work in sugarcane are being planted. Similarly in Madhya Pradesh steps are being taken to start a new rice research institute by the State Government in duplication of research efforts of the university. In West Bengal not only the research stations have not been transferred to the university but also proposals for strengthening 'adaptive research' in the State though the World Bank assistance have been made. In Tamil Nadu in the name of 'adaptive research', the agricultural research stations in the department of agriculture have been renamed as experimental stations. But the research work is being carried out there. The Association explained that all these developments go against the basic fact that the agricultural universities in India have been set up to carry out research work of all types in all branches of agri-

cultural science in support of the development programmes of the States. The recommendations of the national commission that 'adaptive research' should be carried out on the farmers' fields has been given a different stance and parallel research organisations under the State Governments have been used for bringing out the desired results. It has created certain problems and hurdles in the normal development of the agricultural universities and their research wings. The universities are responsible for carrying out fundamental, basic, applied and also adaptive research. The State Government departments are not expected to carry out research which will curtail the research activities and responsibilities of the agricultural universities.

Since the work of the State Government departments will relate to the demonstrations and field verification trials, there should be no research cadre under their administrative set up. Such a set up will lead to duplication of work and wastage of funds and energy. It was therefore recommended that wherever State Governments have such staff, they should be transferred to the agricultural universities along with their research stations and in future no attempt should be made to start any new research station or experimental farms under the State Governments.

It was recommended that forestry should also be integrated with other branches of agriculture in the universities like fisheries, home science, agriculture and animal & veterinary science.

The Association was also strongly opposed to having autonomous campus in the agricultural universities because for effective functioning of the univer-

sities only constituent colleges carrying out the triple functions of teaching, research and extension education are required and therefore the campus should form an integral part of the university system functioning in an integrated manner with the main campus as well as other campuses of the universities. The question of granting autonomous status for outlying colleges and campuses should not arise.

The Association has suggested that the Indian Council of Agricultural Research and the Association should make joint efforts to convince the State Governments for adequate and timely release of block grant, maintenance grant, development grant and matching grant to the agricultural universities.

The Eighth Convention of the Association would be held at Tamil Nadu Agricultural University, Coimbatore from February 17 to 19, 1977. The three topics for discussions were suggested : (i) self-improvement of agricultural universities ; (ii) new courses in agricultural universities ; and (iii) fundamental research in agricultural universities.

The next meeting of the Executive Committee would be held in December, 1976. □

(Contd. from page 12)

17. A National Council for Correspondence Education be formed in order to ensure proper coordination, systematic expansion and streamlining of the Correspondence method of imparting education in the country. The National Council should also bring out a Journal on Correspondence Education to acquaint the Correspondence Educators in India with the latest trends and research on correspondence education. □

Madras streamlines administrative procedures

Madras University has streamlined its administrative procedures. The new reforms are expected to result in a saving of at least Rs. 30,000 a year and there would be much quicker movement of the files. The Registrar of the University had reviewed the entire administration of the university with the assistance of management experts. The study, the first of its kind in the country, was financed by the Indian Council of Social Science Research.

The committee had suggested eliminating as many as thirty of the one hundred and seventeen forms used by various departments. It has also suggested doing away with 30 per cent of the 300 procedures and restructuring another 30 per cent. This would enable the university administration to carry a larger work load

their favour. This arrangement would be effective from September 1976.

UN Varsity to start training scheme at Bangalore

The Central Food Technological Research Institute, Mysore, has been selected by the United Nations University to train scholars from developing countries in the advanced techniques of post-harvest conservation and processing of foodgrains. The first training course has started in the last month.

Dr. B.L. Amla, Director of the Institute attended a five day meeting of the Advisory Committee of the World Hunger Programme attached to the University in Tokyo. He announced that provisional selection for twelve scholars for the first course has already been made by the university in consultation with the CFTRI.

Gujarat exchange programme with Japan University extended

The Union Government has extended the student exchange programme between Gujarat University and Autumn Gafuin University of Japan for a further period of five years. The Executive Council of the university has consequently decided to continue the student exchange programme.

The University Grants Commission has sanctioned a grant of Rupees two lakhs to the university for equipment, purchase of chemicals for the Chemistry and Microbiology Departments. Another grant of Rs. 2.5 lakhs has been approved for the construction of houses for university employees. The Council also decided to give rent free accommodation in the university building for the immediate start of a polytechnological clinic and accepted a donation of Rupees three lakhs given by Mr. Biharilal Kanhaiyalal Shah for the construction of a building for the Microbiology Department. The Council also approved the starting of various employment-oriented courses like office management, banking management, export management, marketing and salesmanship, English improvement course, stenography and industrial engineering and management.

Autonomy for five Madras colleges

The University Grants Commission has approved the proposal of the Madras University to grant autonomous status for Loyola College, Madras; Christian College, Madras; PSG Arts College, Coimbatore, Vivekananda College, Madras (postgraduate departments of Chemistry and Economics) and the PSG College of Technology, Coimbatore. The Commission has further agreed to provide assistance to these colleges on a cent per cent basis after the conferment of autonomous status for strengthening their faculty and for

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without appointing any additional staff. Dr. Malcolm Adiseshiah said that the committee was now examining administrative structure of the teaching departments and their relationship with the university administration.

The Senate of the university at its last meeting also decided to institute job-oriented postgraduate diploma course in office administration, data collection, aquaculture, transportation accountancy, materials management, portfolio management and agricultural banking. It also suggested a new degree course (BSc) in health science under the faculty of medicine. Henceforth there would be no re-valuation of answer books for postgraduate courses in view of the double valuation already in existence. The Syndicate also resolved to refund 50 per cent of the re-valuation fee for undergraduate courses in the case of candidates whose results were altered in

The institute in Mysore has been engaged in the development of food technology for the last twentyfive years. It would soon set up similar institutions in other developing countries on behalf of the UN University.

The research training programmes would vary from six months to three years depending on the country from where the scholars are assigned. In some countries where science and technology have not developed the research scholars would require much longer period of training. The United Nations University would invariably meet the expenses of the scholars coming from the developing countries and would also suggest some of the research programmes at the selected institution. The office of the Resident Programme Coordinator would soon be established at the institute. The Director of the CFTRI would be the Resident Coordinator.

giving them administrative support. The assistance will be for a period of five years in the first instance.

These colleges would be free to conduct their own examinations but the university degrees would be continued to be conferred but will carry the name of the autonomous colleges as well.

Patna plans for new pattern of education

Patna University has constituted a committee to work out a scheme for implementation of new system of education under the 10+2+3 and semester pattern of education. Prof. R.C. Sinha, Head of the Geology Department, is the convener of the committee. The committee discussed the introduction of grading system in declaring the examination results, inter-faculty and inter-college improvement programmes. The idea of the Inter-University Board holding two university examinations at the postgraduate classes was favoured. It has been suggested that at the end of the fifth year a university examination should be held. The grading system should be introduced in different phases. The meeting also discussed the formulation of development programmes of the colleges and other administrative arrangements.

Appointment of army doctors recommended

The President of the Medical Council of India, Dr. B.N. Sinha, has suggested to the Ministry of Defence and the universities to utilise the rich experience of doctors serving in the armed forces after their retirement. Dr. Sinha was inaugurating the 19th annual meeting of the Aero Medical Society of India at the National Aeronautical Laboratory. Dr. Sinha also recommended that the army doctors may be appointed as emeritus professors so that they are associated in research activities. The universities and the Government will benefit by their technical advice and expertise.

Centre of desert studies

Jodhpur University has created a centre of desert studies, which was recently inaugurated by Sardar Jogendra Singh, the Rajasthan Governor. The Governor said that the research problems of desert had a direct bearing on human life, flora, fauna and ecology of the area. He was happy that the university through its efforts will put to practical and purposeful use of the expertise available in universities to diverse fields which would help in the integral development of the desert region through teaching, research and extension. The Governor said that the task of changing the face of the desert was very challenging and called for collaboration of different agencies. He therefore urged everybody concerned to join hand with the centre in this noble venture. The success achieved at the centre would have far reaching effects for it would prove beneficial not only to the country but also to other countries of the world with arid and semi-arid climate.

Political Science workshop

The final workshop on the revision of Political Science syllabi was held at Mysore. The workshop discussed the report submitted by Dr. Iqbal Singh of the University of Rajasthan. The workshop also considered various problems relating to courses in public administration, international relations, M. Phil programme and research methodology in the universities. An important recommendation of the workshop was that different universities should specialise in certain fields and encourage the study of

regional politics. The workshop also suggested involvement of students in the syllabi making process.

Semesters at graduate level

Dr. H.N. Narasimhaiah, Vice-Chancellor of Bangalore University has announced that semester system would be introduced at the graduate level for BSc, BCom, LLB, BEd and BPEd courses from the 1977-78 academic year. The university has already introduced semester system at the postgraduate level.

One of the important features of the system was to make the student feel interested in his duties towards studies uniformly throughout the year. The examination would be held at the end of 4½ months. Besides this, other tests would also be held in between. The new system is to relieve the strain on the students memory.

The duration of each semester is 4½ months. In between two semesters in an academic year, there would be a vacation for one month. The summer vacation would be for two months as at present. There will be university examination at the end of each semester. The university has provided for the automatic promotion of the student from the first semester to the second semester irrespective of the number of subjects he might have failed in the first semester. But he would go from the second semester to the third semester if he had not failed in more than two subjects. The minimum pass percentage would be forty and the results of the examinations would be announced at the end of each semester.

With effect from January 1977 UNIVERSITY NEWS will be published twice a month. This has been done in response to numerous suggestions received from universities and colleges.

The journal will be issued on the 1st and 16th of every month.

Correspondents and readers are requested to send in their contributions and articles as well as advertisements well in time keeping the above dates in view.

EDITOR

Principals conference convened at Madras

Dr. Malcolm S. Adiseshiah, Vice-Chancellor, University of Madras, has appealed to the colleges having postgraduate courses to orient themselves to the requirements of the University Grants Commission particularly in the matters of staff pattern. According to the Commission's norms each postgraduate department should have six M.Phils and four PhDs on the staff in science subjects and four M.Phils and two D.Phils in arts and humanities. While addressing a meeting of the college principals, the Vice-Chancellor said that the existing staff in postgraduate centres has four years before them to qualify either to full-time or part-time studies. He wanted the colleges to send to him their plans for development for the next four years to help teachers qualify themselves and advised them to appoint only M.Phils and D. Phils in future as there was no dearth of such candidates.

The principals meet was convened mainly to discuss and review the integrated rural development programmes in colleges. The Vice-Chancellor said that the Centre has selected twenty-two districts, one in each State under this programme with the financial allocation of Rs. one crore for each. Dharampuri district in Tamil Nadu has been selected for the purpose. Besides this each college in Tamil Nadu was undertaking rural development programme under the National Service Scheme and other related projects. A major deviation from the conventional programme was that an attempt was now being made for an integrated application to scientific techniques. The Vice-Chancellor asked the colleges to involve their scientists and experts in the rural development programme in a big way. He said that non-formal education was an area where the university would concentrate much. The centre in Tamil Nadu has been selected for such non-formal education programmes.

The two centres at south arcot and north arcot have been selected for the purpose.

Andhra reviews the working of semester system

Andhra University is one of the twelve universities in the country which have adopted the semester system in their faculty of engineering. At this university there is cent percent internal evaluation. This has established a greater rapport between the teachers and the taught. The inter-dependency has gone to such an extent in several cases that the syllabus was put aside and the questions were set covering portions suggested by the students. The date of examinations was also set to the choice of the students. The study has revealed that there was no uniformity in the system as it differed from department to department and from university to the affiliated colleges. In some departments the internal assessment was cent percent while in few others it was 90% with viva voce carrying 10%. In contrast to this there was 75% external evaluation for the postgraduates in the affiliated colleges. Under this system there was no question of postponing the studies as the students were required to be in preparedness always. The dependency on the teachers also had come down as the students are required to acquire as much knowledge as possible. The habit of library reading has been inculcated. From the administrators point of view the main advantage has been that the results can be published without much delay as the marks are shown to the students. They are able to know where exactly they stood to put their best performance in the next semester. The study has however revealed the lack of uniformity which has resulted in some confusion. Suggestions have been made for the introduction of certain percentage of external evaluation while others wanted cent percent internal evaluation. As the course in the engineering faculty is of five years

it is time for taking stock of the conditions and to reshape it more in the direction of uniformity and competence.

Applied sciences complex

Mr. D V. Urs, Vice-Chancellor of Mysore University is planning a complex of applied sciences at the university campus where the students and scientists would be brought together to solve the problems of the country. While inaugurating the three-day All-India Symposium on Comparative Endocrinology being organised by the Zoology Department as part of the diamond jubilee celebrations of the university, Mr. Urs regretted that though India was rated as the third largest country in respect of technical manpower, had enormous problems of employment.

The Vice-Chancellor said that the university was planning to organise an institution of Genetics to study the problems of population explosion. The area of applied sciences would be considerably enlarged.

Dr. L. S. Ramaswamy, Emeritus Professor of Rajasthan University in his keynote address stressed the important role of endocrinologists in fighting the problems of population explosion. He said that according to the available forecast, the world population would be doubled by 2000 A.D. This was awfully frightening. It was the duty of scientists to evolve measures to control reproduction. He called upon the university to take up the study of reproduction biology of monkeys which were available in plenty in the nearby forests. About twenty universities and institutions from all over the country participated in the symposium organised by Dr. Rajasekhara Setty, Head of the Zoology Department.

SPU brings about various examination reforms

Sardar Patel University has introduced semester system in all the faculties except those of arts and commerce at the undergraduate level. The semester system

is already working in the faculties of science, engineering and technology from 1970. It has been proposed to extend this to the faculties of arts and commerce from the current academic year commencing June 1976. The internal assessment has been introduced in all the faculties at the undergraduate level to the extent of 30 per cent, while at the postgraduate level internal assessment is up to 50 per cent. It consists of periodical tests, quizzes, terms papers, home assignments, seminars, etc.

The university has provided question banks for the pre-university classes in all its faculties. Banks in all subjects for all examinations leading to the first degree in the various faculties of the university are available with the university. The question banks are continuously fed by teachers teaching the respective subjects and are scrutinised by the Board of Studies of various subjects continuously. The university has arranged various seminars and workshops with the financial assistance provided by the University Grants Commission. The university has also implemented the grading system for all postgraduate examinations leading to the Master's degree progressively from the current academic year. It would be introduced in the undergraduate courses in the first year of the three-year degree courses progressively from 1977-78 session. The university has adopted seven-point scale for the grading. The final results of the students will be declared in terms of accumulative grade point average of all the semester examination prescribed for a particular degree.

Radical changes in the management of colleges

Many radical changes are proposed to be effected in the management and service conditions of the degree colleges in Uttar Pradesh. At the conference of Principals and Managers of degree colleges, it has been recommended that the posts of teachers in degree colleges should be made transferable and

there should be a model constitution of the managing committees debarring relatives and educationally inferior persons from membership. The conference also suggested that character rolls of teachers should be maintained and in case of three successive adverse entries a teacher should be warned after which he would lose his annual increment and even then if he proves incorrigible, other suitable punishments like demotion or compulsory retirement may be awarded to him. For recruitment of teachers, a central body like the service commission should be set up and the selection of teachers should be taken away from the managing committees. A teachers' council in each college should be set up to help the principals in day-to-day administration on which there should be student representatives as well. The recommendations required the teachers to remain in the college during the college hours to help and guide students and for laboratory work. Inservice training of teachers at frequent intervals is essential due to the introduction of new courses and developments in the educational fields. They should be asked to submit the synopsis to their class lectures in advance to the Principal or to the Head of the Department. The managers of degree colleges also recommended that a model constitution of the managing committees should be drafted limiting the members to fifteen out of which nine should be elected by the body or the trust running the institution, three representatives of the teachers by rotation, one nominee of the Vice-Chancellor and the principal. The new rules for the managing committees will require the committee to hold at least one sitting in two-three months. A member absenting on three consecutive meetings will be removed.

Cadre for servicing laboratory equipment

Prof B. Ramachandra Rao, Vice-Chairman of the University Grants Commission while inaugurating

the All-India Symposium on Laser Systems at the Indian Institute of Science said that about thirty to forty per cent of the equipment in colleges and university laboratories was out of commission. The Commission has therefore set up instrumentation committees so that laboratories in universities are built up and maintained properly. The aim of the Commission was to build up a cadre of engineers and technicians capable of repairing sophisticated instruments. The major scientific institutions in the country like the Institute of Science, IITs, Bhabha Atomic Research Centre and the National Physical Laboratory have been requested to help in organising the training programmes for developing the cadre.

The UGC is also planning laboratories in universities where the instruments and equipment in each laboratory is pooled together and the personnel trained in the maintenance and analytical aspects of instrumentation would look after them. Through this programme the universities need not depend on foreign sources for major parts of instrumentation. Prof. Rao appealed to the young students and scientists to make full use of the available facilities and grants in the country to further their research work. He said that every worthwhile project will be given assistance by the Commission.

Gandhian institute to be set up at Rajkot

A move has been initiated to set up an Institute of Gandhian Studies at Rajkot to provide facilities for research and higher studies on Gandhian and allied matters by Saurashtra University. Mr. H.S. Sanghvi, Vice-Chancellor of the university, is keen that the proposal made by the university about 14 months ago is implemented as early as possible. He has made a proposal to the various organisations to take up the matter in right earnest. The university has offered to take over the premises of Rashtriya Shala

and make it a part of the university campus where the proposed institute is to be located. The university is already offering two-year postgraduate course and one-year diploma course in Gandhian studies. The curriculum for postgraduate studies includes Gandhian philosophy, importance of prayer, celibacy, ethics, respect for all religions and creeds, private property and principle of trusteeship, rural economy, communal unity, khadi and village industries, ideal of service, uplift of Harijans, ashram life, self reliance, satyagraha, prohibition, non-violence, sarvodaya, comparative study of Gandhi, Ruskin and Karl Marx. One of the interesting features of the study proposed to be undertaken at this institute is to emphasise the value of offering prayers collectively. The university has already provided a sum of Rs. ten lakhs for the proposed institute of Gandhian studies.

Madras colleges for quality institution status

The University of Madras at the request of the University Grants Commission has selected twenty three colleges to be developed as "quality institutions". These colleges would get a grant of Rs three lakhs from the Commission. The Commission has offered about twenty fellowships to university teachers who acquired MPhil or PhD qualifications. The fellowships would entail leave of absence with salary.

The University is examining a proposal to introduce group medical insurance scheme for its employees whose number is about 1300. The university has also decided to reserve one-third of the posts of lecturers and professors falling vacant this year for scheduled castes and scheduled tribes candidates. While there would be no concession in qualifications or age, they would be posted as Assistant Lecturers directly without teaching experience stipulated for general candidates. The university is also planning to initiate various reforms to cut

down red tape in order to devote more time on research programmes. These reforms are likely to result in a saving of Rs.30,000 a year to the university.

Two varsity centres for Kerala

Kerala University is making a move to establish postgraduate centres at the district headquarters for courses for which there was no provision in affiliated colleges. The committee on planning and development of the university has recommended to the Government the opening of two postgraduate centres, one at Quilon and the other at Changanacherry during the fifth plan period. As soon as the acquisition of land is finalised by the Government, the construction of university buildings would be taken up. The Vice-Chancellor, Dr. R.S. Krishnan, has made an appeal to the public to extend their co-operation for the implementation of the scheme. The buildings and other fixtures at Quilon are expected to cost over Rs. 18 lakhs. A committee with the District Collector as the Chairman has been constituted to collect necessary funds for the purpose. The university proposes to start courses in Commerce, Mineral Chemistry, Geology and Zoology with specialisation in some branches relevant to the needs of the area.

VOCATIONALISM IN education

While addressing the students of the College of Vocational Studies in Delhi, Prof. Satish Chandra, Chairman, University Grants Commission, suggested that vocational training should not be mixed up with the regular academic courses at the degree level. The nomenclature of vocational training gave a wrong impression to the students that the courses would ensure them jobs. In fact the university only trains people in certain vocations and it does not create jobs. In fact the introduction of work experience under the new education pattern was different from vocational training. Work experience was a sort of field experience, the practical application of what is taught at the school or the university. The real task was to relate academic learning to practical life, to strike a balance between theoretical learning and the gainful use in the field of life. The Commission has decided to develop a system where theoretical courses in arts and science would be applied to field work.

New norms for post-graduate centres

Any university which wants to set up a postgraduate centre has been advised by the University Grants Commission to carry

Revised Subscription Rates

Effective January, 1977

Period	Inland			Abroad	
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1 year	16.00	80.00	140.00		
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out a survey in collaboration with the State Governments on its needs for providing additional facilities for postgraduate education. The question of setting up a centre will be taken up only after such a survey has been made. The Commission is expected to consider the above recommendations of the working group set up to study the working of postgraduate centres.

The university postgraduate centre is an extension of the university which sets it up. But it may have different courses and admission facilities for postgraduate education. It may have considerable academic and financial autonomy. A postgraduate centre could also be set up in an area which has a cluster of colleges with high enrolment and not necessarily at the university headquarters. The Commission has received fifteen proposals for setting up new postgraduate centres. There are already nine postgraduate centres available in the country.

Panjab expands its campus

The Panjab University has recently purchased 250 acres area of Sector 25 at the cost of Rs. 25 lakhs in Chandigarh. This sector will be developed and utilised for establishing a sports complex, providing more house for the staff, starting new university departments and shifting the government school with its 800 students from the campus. Guru Nanak Bhavan will also be built in this sector at an estimated cost of Rs. 7.5 lakhs. The major part of it is to be financed by the Union Education Ministry. Guru Ravi Dass Chair would also be set up in the university's Hindi department. Funds for this project will be provided by Punjab Government. The university has been concentrating on the quality improvement of teaching and research on the campus. Recently the Syndicate of the university has agreed to the proposal of the Vice-Chancellor, Prof R C. Paul, that a junior Lecturer, junior

Reader and a student be nominated to the Senate. The decision is in conformity with the changed circumstances.

New courses for Himachal

Himachal Pradesh University would soon introduce B. Com, Diploma courses in library science and business management and diploma in educational technology and educational administration through correspondence. The Directorate of Correspondence Courses also proposes to establish study centres at important places throughout the country and construct hostels to accommodate contact programme candidates and strengthen the library of the directorate besides providing mobile library facilities to students. At present teaching facilities have been provided to 7000 students in eight subjects including MCom and MEd at the postgraduate level and in all subjects at the undergraduate level.

Grants for remedial courses

The University Grants Commission would provide cent per cent assistance to colleges for remedial programmes for students belonging to backward classes, scheduled caste and scheduled tribes. The assistance from the Commission will also be available to one or two colleges in the districts having special programmes in restructuring of courses keeping in view the manpower needs of the area in which the college is located.

Kakatiya to start building construction

The Syndicate of Kakatiya University has sanctioned the construction of science, administrative and hostel buildings costing Rs. 41.5 lakhs which has been made available by the State Government. The University Grants Commission has also agreed to provide a sum of Rs. six lakhs to the university. The works committee has been constituted

to supervise all the construction jobs.

The university proposes to introduce M.Phil courses in all the postgraduate departments. Syllabi for these courses are being finalised by the faculty.

TN to restructure medical education

The Tamil Nadu Government proposes to introduce a new pattern of medical education by restructuring the content, purpose and emphasis on different aspects of medical education. Medicos, in addition to their routine studies, will work under the new pattern in the community, in slum and villages to learn at first hand the problems of common man.

New Chair in Guru Nanak Varsity

The Punjab Government would soon establish Hazarat Mian Mir Chair at the Guru Nanak Dev University, Amritsar. Hazarat Mian Mir was a sufi saint of the seventeenth century who was invited by Guru Arjan Dev, the fifth Sikh Guru to lay the foundation stone of Golden Temple. The Syndicate of the university also authorised to undertake research on the life of Bhai Jita who had carried the head of Guru Tegh Bahadur after he was beheaded under the orders of Aurangzeb. Shri Bishan Singh Samundri, Vice-Chancellor, is keen that the university should produce a book on the life of Bhai Jita.

Literacy centres at Bombay

Bombay University Student Council has decided to organise a mass 'illiteracy eradication campaign' as one of the projects of the National Social Service. Each college unit proposes to adopt a slum area to conduct literacy centres. The NSS has already started the work in various areas. At some places the classes are held regularly in the evenings for this purpose.

Conferences, Seminars and Workshops in India 1976 - 77

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
1976			
November			
15-15 Dec	Refresher course in Botany.	Srinagar	Dept. of Botany, Univ. of Kashmir & U.G.C.
December			
4-17	System Engineering	Kanpur	I.I.T. Kanpur
4-19	Experiments in Chemical Metallurgy	Kanpur	I.I.T. Kanpur
6-7	5th National Symposium on Refrigeration and air-conditioning.	Madras I.I.T.	Nat. Committee of International Inst. of Refrigeration, I.I.T. Madras
6-10	Library and Information Science Manpower Development.	Bangalore	Documentation Research & Training Centre, Bangalore
6-18	Stability theory and application in engineering structures	Kanpur	I.I.T. Kanpur
6-25	Management of production systems.	Kanpur	I.I.T. Kanpur
8-10	2nd National Symposium on Cryogenics	Madras I.I.T.	Indian Cryogenic Council & I.I.T. Madras
9-11	Symposium on Vitamin and Carrier function of polyprenoids.	Bangalore, Indian Inst. of Science, Dept. of Biochemistry	UGC, ICAR, INSA, Min. of Defence & Dept. of Science & Technology
10-12	3rd National Conference on I.C. engines and combustion.	Roorkee	Dept of Mech. & Industrial Engg. University of Roorkee and IIP Dehradun
12-15	Annual convention of Chemists 1976	Bangalore University	Indian Chemical Society, Institution of Chemists (India) CSIR Society of Biological Chemists
13-18	3rd Programme on Mining for non-mining executives	Dhanbad	Indian School of Mines
13-20	Computers and Management	Hyderabad	Administrative Staff College
13-23	14th Tuberculosis control Seminar.	Bangalore National TB Institute	Dir General of Health Services through National Tuberculosis Institute
13-24	Heat transfer in casting & other phase change problems.	Kanpur	I.I.T. Kanpur
14-17	Industrial Electro-chemistry, International Symposium on.	Madras I.I.T. Campus	Society of Advancement of Electro-chemical Science & Technology Karaikudi
15-14 Jan	6th Health Planning Course	New Delhi	Nat. Institute of Health Administration and Education
18-19	Symposium on Management of power systems.	New Delhi Vigyan Bhawan	Inst. of Engineers (India) New Delhi
18-19	4th Symposium on application soil mechanics and foundation engineering.	Calcutta	Indian Geotechnical Society C/o Institution of Engineers (India) New Delhi
20-22	Educational policy and Management.	Hyderabad	Administrative Staff College
20-24	Silver Jubilee celebrations of the Dept. of Chemical Engineering	Bangalore	Indian Inst. of Science
20-26	Short winter course in Estuarine and Marine Environment for college teachers of geology.	New Delhi, Jawaharlal Nehru University	UGC & JNU
20	5th Congress of International Yoga teachers.	Panchgani	
21-23	5th annual conference of the Orissa Mathematical Society.	Berhampur	Berhampur Univ. & Orisa Math. Soc.
24-26	42 Annual conference of Indian Mathematical Society.	Trivandrum	University of Kerala & Indian Mathematical Society
24-2 Jan.	Refresher course in Modern Algebra for college teachers.	Hyderabad	Dept. of Mathematics, Univ. College of Science, Osmania University & UGC.

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
26—29	The Biology of man in North India.	Delhi	Dept. of Anthropology, Univ. of Delhi & UGC.
27—29	20th All India Science Teacher's Association Conference.	Allahabad	All India Science Teachers Association, New Delhi
27—31	51st All India Educational Conference.	New Delhi	All India Federation of Educational Associations, Kanpur
27—1 Jan.	Recent advances in Mathematics and its applications.	Varanasi, Banaras Hindu University	Dept. of Mathematics, B.H.U.
28—31	36th Annual Conference of Association of Surgeons of India.	New Delhi	Association of Surgeons of India, PG Institute of Medical Education & Research, Chandigarh
28—31	7th All India IASLIC Seminar	Burdwan Univ. W. Bengal	IASLIC
29—1 Jan	Indo British Conference on Engineering production.	Delhi	I.I.T., Delhi
29—5 Jan	6th International Paleontological Conference.	Lucknow	Birbal Sahni Inst. of Palaeobotany
30	3rd annual conference of the Indian Society of Human Genetics	Delhi	Dept. of Anthropology, Univ. of Delhi & UGC
31	Conference on standardisation and quality control of surgical instruments and hospital equipment	New Delhi	Indian Standards Institution
30—1 Jan	Annual conference of the Anatomical Society of India	Lucknow	A.S.I. King Georges Medical College Lucknow
Dec—Jan	18 Joint technological conference	Bombay, Bombay Textile Research Association	Ahmedabad Textile Industries Research Association, Bombay Textile Research Association S. India Textile Research Association Univ. of Mysore & UGC
Dec.	Annual conference of the Indian Economics Association.	Mysore	
Dec.	Project engineering and chemical plant design.	Nagpur	Institute of Engineers (India)
Dec.	Quality control in civil Engineering	Pune	Inst. of Engineers (India)
Dec.	Transfer of technology in mining and metallurgy industries	Calcutta	Inst. of Engineers (India)
Dec	Winter School on Solar Energy.	Madras, I.I.T.	Indian Society for Technical Education & IIT Madras
Dec	All India English Teachers Association. annual conference.	Bombay	A.I.E.T.A.
Dec.	Symposium on graph theory	Calcutta	Indian Statistical Institute, Calcutta
Dec - Jan	All India Seminar on Legal Aid to the poor.	Kurukshetra University.	UGC & Law Dept., Kurukshetra Univ.
1977			
January			
2—8	4th Triennial Conference of the Association for Commonwealth Literature and language studies	Delhi	
3—6	XX All India Obstetrics and Gynaecology congress.	Gauhati	
3—7	International Symposium on Soil Structure.	Roorkee	Univ. of Roorkee, Dept. of Civil Engg
3—7	64th Indian Science Congress.	Bhubaneswar, Utkal Univ. and Orissa Univ. of Agriculture & Technology.	Indian Science Congress Association, Calcutta
9—12	Technical Convention of the Computer Society.	Poona	Computer Society of India, Bombay
10—14	International Symposium on Solid State Physics.	Jadavpur, Calcutta	Indian Association for the Cultivation of Science
10—14	6th World Conference on Earthquake Engg.	New Delhi, VigyanBhawan	
10—15	1st International Symposium on Avian Endocrinology.	Calcutta, Ramakrishna Mission.	UGC, Univ. of Calcutta, Ramakrishna Mission

<i>Date</i>	<i>Title</i>	<i>Venue</i>	<i>Sponsoring Body</i>
10—15	English Literature Seminar: Lectures by Prof. Sharrock.	Delhi	Dept. of English, Delhi Univ. & British Council.
15—24	English Literature Seminar.	Chandigarh	Dept. of English, Panjab Univ. & British Council
17—19	National Symposium on Coordination Chemistry.	Jadavpur, Calcutta	Indian Association for the Cultivation of Science.
17—4 Feb.	Project Management.	Hyderabad	SIET Institute, Yusrufguda, Hyderabad
21—23	Evaluation of Family Planning & other health programmes.	New Delhi, Maulana Azad Medical College	Indian Public Health Association Calcutta
21—24	32nd Joint Annual Conference of Physicians of India.	Calcutta Rahindra Sadan & P. G. Hospital Complex.	Association of Physicians of India, Cardiological Soc. of India, Haematological & Blood Transfusion Society, Indian Soc. of Nephrology, Endocrine Society of India, Association for Chest Diseases.
24—25	4th National Marketing Convention	New Delhi, Vigyan Bhawan	Inst. of Marketing & Management, New Delhi.
Jan.	Library Scene in Calcutta (to celebrate in 100th Study Circle of IASLIC)	Calcutta, National Library	IASLIC
Jan.	Gondwanaland Symposium.	Calcutta	Geological Survey of India
Jan.	Transfer of Technology: Round table conference.	Bombay	Inst. of Engineers (India)
Jan.—Feb.	Symposium on Immunological aspects of reproduction.	Bombay	Institute of Research in Reproduction, Bombay.
February			
3—5	Seminar on Exploration Geophysics in India.	Hyderabad	Association of Exploration Geophysicists, Osmania University
7—12	Management by Objectives, Seminar.	Hyderabad	Administrative Staff College
7—23	Symposium on Bio-conversion of Cellulosic Chemicals & Microbial protein.	New Delhi, IIT	Dept. of Science & Tech. GOI, U. Inst. of Microbiology, Swiss Fed, Inst. of Tech., IIT, New Delhi, Indian Nat. Sc. Academy
20—23	Seminar on Small Towns.	Varanasi	Indian Academy of Social Sciences, Indian Institute of Management, Calcutta, National Geographical Society of India Dept. of Geography, BHU
28—2 March	Population Policy in India and its Consequences.	Deonar Boundary	International Institute for Population Studies
Feb.	Symposium on operating experience of nuclear reactors.	Bombay	Bhabha Atomic Research Centre, Bombay
Feb.	English Language Teaching Institute Directors Conference.	Hyderabad	C.I.E.F.L., Hyderabad
Feb.	International Oceanographic Commission	New Delhi	
Feb.	Seminar on Audio-Visual Education in Architecture.	Chandigarh	College of Architecture
Feb.	Zonal Wheat Workshop.	Niphad	Agric. Research Station, Niphad, Dist. Nasik.
Feb.	All India convention of Social Scientists and Inter-disciplinary Seminar on small and middle size towns in developing countries: problems and prospects.	Varanasi	Dept. of Geography, BHU
Feb.—March	All India Seminar on Designs of standardisation of electrical machinery	Inst. of Engineers (India) Hyderabad.	Inst. of Engineers (India), Calcutta
March	National Seminar on Technology for Agricultural Development.	Chandigarh	Inst. of Engineers (India) New Delhi.

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Transfer of technology: Round table conference
Zonal Wheat Workshop

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International Symposium on Soil Structure
Quality control in civil engineering
6th World Conference on Earthquake Engg.

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3—7 Jan. 1977
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December 1976

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51st All India Educational Conference
Seminar on Audio-Visual Education in Architecture
20th All India Science Teacher's Association Conference

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Engineering

All India Seminar on Designs of Standardisation of electrical machinery
5th National Symposium on Refrigeration and air-conditioning
Indo-British Conference on engineering production
Industrial Electrochemistry, International Symposium on
Stability theory and application in engineering structures
Symposium on Management of Power systems
Systems engineering
3rd National Conference on I. C. engines and combustion
Winter School on Solar Energy

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English Language Teaching Institute: Directors Conference
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English literature seminar: Lectures by Prof. R. Sharrock
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18 Joint technological conference
Project engineering and chemical plant design
Silver Jubilee celebrations of the Dept. of Chemical engineering

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Library and Information Science Manpower Development
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Refresher course in Modern Algebra for college teachers
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Symposium on Immunological aspects of reproduction
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THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

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1. More, Shankarrao Venkatrao. Topological and distributional aspects of integral transforms and their applications. Marathwada University.
2. Murty, Venkata Ramana. Construction of certain kinds of semilattices and the geometry of semi-Brouwerian algebras. Andhra University.
3. Parohit, N.K. Approximate analytical solutions for some problems in fluid mechanics. I.I.T., Bombay.
4. Rajappa, N. Investigations in orbital mechanics and related aerospace problems. University of Madras.
5. Wavare, Prabhakar Dagdurao. Some problems in advanced fluid mechanics. Marathwada University.

Operational Research

1. Parmod Kumar. A study of reliability models. University of Delhi.

Statistics

1. Bidshadi, Parviz Shirani. Contributions to the theory of successive sampling. University of Delhi.
2. Laljee Singh. On inference for an incompletely specified mixed model. Vikram University.
3. Rathod, Vinod Ramjibhai. Some results in exponential life testing. Sardar Patel University.

Physics

1. Albin, S. Electrical and optical properties of evaporated thin B_2O_3 and Sb_2O_3 films and design fabrication and use of an optical thickness monitor. University of Poona.
2. Ashok Kumar. Large signal negative conductance studies of transferred electron devices by transient measurement. University of Delhi.
3. Baruah, Prabin Chandra. Studies on radio pulses from extensive air showers. University of Gauhati.
4. Goswami, Dinesh Chandra. Studies on electromagnetic waves both at optical and radio-frequency regions from extensive air showers. University of Gauhati.
5. Kataria, Narayan Das. Study of transport phenomena to some polar semiconductors. University of Delhi.
6. Kaushik, Vijay Kumar. Centrifugal distortion in asymmetric top molecules. I.I.T., Kanpur.
7. Laskar, Indumati. On the disintegration of silver and bromine nuclei by high energy antiprotons. University of Gauhati.
8. Paldas, Madanmohan. On some aspects of wave propagation through ferrimagnetic and piezoelectric media. University of Calcutta.
9. Prabhakaran, J. Studies on the interactions of higher spin particles. University of Madras.
10. Raghavan, Sekhar. Studies on some weak decays of hadrons with special reference to inelastic effects. University of Madras.
11. Ram Rattan. Performance of optical systems in presence of image motion. I.I.T., Delhi.
12. Satya Yash Pal Singh. Modification of low frequency waves by oscillating fields. Gujarat University.
13. Shradha Nand. A pseudopotential approach to investigate the thermal and the electrical properties of metals. I.I.T., Delhi.

14. Subadra, K.G. X-ray studies of some crystals with the NaCl and CsCl structures. Osmania University.

15. Wasly, John K. Luminescence of strontium and calcium doped sodium chloride phosphors. M.S. University of Baroda.

Chemistry

1. Abbasi, S.A. Reactivities of some heterocyclics : Studies on binary and ternary complexes in solution. I.I.T., Bombay.
2. Bagora, Prakashchandra M. Thermodynamic studies of some quinquivalent vanadium complexes. Indore University.
3. Bandyopadhyay, Manoranjan. Studies on the pozzolanic activity of some aluminosilicate materials. University of Calcutta.
4. Bhattacharyya, Chittaranjan. Studies on combined ion-exchange and solvent extraction technique. Visva-Bharati.
5. Bidkar, Ravindrakumar Gopalrao. Polarographic studies in metal complexes. Marathwada University.
6. Chaudhary, Alok Chandragupta. Synthesis of fluorine substituted potential physiological active compounds. Marathwada University.
7. Das, Nita. Cosolvency studies of polymers with special reference to polyethylene. University of Calcutta.
8. Dave, Suhagini. Reaction at the methylene group of a 1:3 diketone or a beta-keto-ester: Condensation of ethoxymethylene aceto-acetic ester and ethoxymethylene acetyl acetone with ketones in the light of Principle of Vinylogy. Indore University.
9. Gujral, Vinod Kumar. Synthesis of naturally occurring prenylated compounds. University of Delhi.
10. Gumaste, Anand Vaman. Physico-chemical studies of metal chloride complexes. University of Poona.
11. Judas, Franco. Influence of light on metals and alloys in aqueous and non-aqueous solutions. Gujarat University.
12. Kakhandki, Lachappa Shivalingappa. Formation constants of bivalent metal complexes with salicylic acid and related compounds. Karnatak University.
13. Kanakarajan, K. Studies in the synthesis of thieno (2,3-b)-quinolines. University of Madras.
14. Khandekar, Ramvijay Raghunath. Structural, electrical and optical properties of some semiconducting chalcogenides. University of Poona.
15. Krishna Rao, K.V. Studies in organic polarography : A polarographic study of the reduction and kinetics of the acid hydrolysis of resacetophenone oxime and some related compounds. Sri Venkateswara University.
16. Kuruvila, V.O. Chemistry of low productive acid sulphate soils of Kerala and their amelioration for growing rice, *Oryza sativa* L. Utkal University.
17. Mitra, Gautamkumar. Synthesis of heterocyclic compounds having possible antiprotozoal activity. University of Calcutta.
18. Patel, A.B. Studies in corrosion of copper and its inhibition. Gujarat University.
19. Patel, Narwarlal Ambalal. Studies on metal complexes of some monoximes. Sardar Patel University.
20. Patel, Ranjanben Gordhanbhai. Study on polymerization of oils from uncommon seeds. Sardar Patel University.
21. Patel, Vijaykumar Chhotabhai. Studies on acylacetanilides. Sardar Patel University.
22. Sase, Eknath Govindrao. Studies in metal complexes of some phenolic acids. Marathwada University.

23. Sekara Reddy, Goutanapalli Chandra. A chemical study of triterpenoid components of some *Gardenia* and *Balaia* species. University of Delhi.

24. Sood, Gulshan Rai. Chemical components of some Indian medicinal plants: Polyphenols and terpenoids. University of Delhi.

25. Subramanian, R.N. Kinetic of chlorine-addition to olefins in solution. University of Madras.

26. Sonder, R. A chemical study of *Cheilanthes longissima*, *Polypodium juglandifolium* and *Cucumis melo*. University of Delhi.

27. Thaker, Bharatkumar Trikamal. Binary and ternary complexes and their reactivities. M.S. University of Baroda.

28. Vartak, Hari Gopal. Proteinase inhibitors. University of Poona.

29. Venkataratnam Reddy, G. Studies on solution properties of high polymers. University of Madras.

Earth Sciences

1. M. Prakash. Studies on amphibolites of the western part of Bihar mica belt, India. Indian School of Mines, Dhanbad.

2. Rattan, Satya Swaroop. Geological studies of a part of the Chambra Area with special reference to its stratigraphy. University of Delhi.

3. Sharda, Yashpal. Some sedimentologic investigations around Udhampur, Jammu and Kashmir State. University of Delhi.

Engineering & Technology

1. Anand, Sneh. Transport phenomenon of the oviduct. I.I.T., Delhi.

2. Arunachalam, N.V. Determination of ultimate strength of composite beams: A stochastic approach. University of Madras.

3. Ghosh, Purnendu. Kinetic and oxygen transfer studies in gluconic acid fermentation. I.I.T., Delhi.

4. Kaul, Omkar Nath. Vibration response of multilayer structures to random excitation. I.I.T., Delhi.

5. Laul, Madhukar Sadashiv. Dehydration of foods: Fluidized bed drying of chillies. Nagpur University.

6. Mehta, M.H. Investigations on heat transfer and frictional characteristics of enhanced tubes for condensers. I.I.T., Bombay.

7. Nagpal, Ashok Kumar. Lateral load analysis of tall buildings by approximate methods. I.I.T., Delhi.

8. Nigam, D.N. Optimal modal control of power systems. I.I.T., Kanpur.

9. Prabhakar Narayan, Casuba Gopalakrishnan. Variational methods in stability analysis of slopes. I.I.T., Delhi.

10. Radhakrishnan Nayar, P. Effect of entrained air on the transient pressures and cavitation in a linear hydraulic drive. University of Madras.

11. Sane, L.S. Horizontally curved girders: Some studies. I.I.T., Bombay.

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Biochemistry

1. Aruna, Rita Mary. Glycolipid metabolism: Studies on N-acetyl-B-D-hexosaminidases in monkey brain. University of Madras.

2. Bhattacharyya, Gopal. Studies on the mechanism of antimetabolite resistance in *Vibrio eltor*. University of Calcutta.

3. Dias, Peter Dominic. Effect of visual stimulation and visual deprivation on some of the lipids, free amino acids and

neurotransmitters in the optic lobe of pigeon brain. Nagpur University.

4. Nandi, Jyotirmoy. Evaluation of versicolin, an anti-fungal antibiotic. University of Calcutta.

5. Ramakrishnarao, Pillutla. Studies on metabolism in experimentally-induced fatty livers. University of Madras.

6. Vatsala, T.M. Biochemical genetical studies on pyridoxineless mutants of *Aspergillus nidulans*. University of Madras.

7. Venkatasubramanian, K. Some aspects concerning the structure aggregation and interaction properties of collagen. University of Madras.

Marine Biology

1. Balakrishnan, K.P. Studies on the biology of the cirripedes of the west coast of India. University of Kerala.

2. Govindarajan, S. Investigation on the haemolymph proteins in a scorpion, *Palamnaeus swammerdami*. University of Madras.

3. Varghese, P.P. Studies on the biology, morphology and the development of cichlidae. University of Cochin.

Microbiology

1. Rajinder Singh. Genetic control of mitochondrial biogenesis in yeast, *Saccharomyces cerevisiae*. Haryana Agricultural University.

2. Thirumurthi, K.V. Some aspects of toxins produced by microorganisms. University of Madras.

Botany

1. Bhatt, P.N. Histochemical studies of the developmental stages of coix. Gujarat University.

2. Chatterji, Debabrata. Studies on the physiology and antecology of certain plant. Awadhesh Pratap Singh University.

3. Chattoo, Bharat Bhushan. Observations on the lethal and mutagenic effects of NTG on *Aspergillus* and *Thermoactinomyces*. University of Delhi.

4. Chattopadhyay, Subhendra Nath. Studies on repair and modification of U.V. radiation damage in *Rhizobium lupini*. University of Calcutta.

5. Gaikwad, Padmakar Dinkar. Cytogenetic studies in *Coriandrum sativum* Linn. Nagpur University.

6. Karkun, Deepak. Studies in the physiology of parasitism of any pathogenic fungi, with special reference to the aspects of host-pathogen interaction. Ravishankar University.

7. Mukadam, Digamber Sambhaji. Physiology of leaf spot fungi-I: Spore germination of alternaria species. Marathwada University.

8. Nehemiah, Arunkumar M. Physiology of fungi-III. Marathwada University.

9. Paliwal, Ganesh Shankar. Anatomical studies of some vascular plants. D.Sc. University of Delhi.

10. Pardiwal, Prakash Babulal. Pathology and physiology of bacterial diseases-I. Marathwada University.

11. Sai Krishna Prasad, A.K. Taxonomy of the genus *Nostoc vaucher*. University of Madras.

12. Shah, A.K. A study of uptake and exudation of metabolites by blue green algae. Gujarat University.

13. Subramoniam, V. Studies into post-harvest diseases of fruits and vegetables in Maharashtra; and taxonomy of some Indian ascomycetes and fungi imperfecti. University of Poona.

14. Vatsala. Morphogenetic studies in *Kickxia Ramossissima*. University of Delhi.

Zoology

1. Ambore, Namdeo Eknathrao. Studies on some aspects of the physiology of fresh water crab with special reference to sex and size. Marathwada University.
2. Arora, Renu. Hormonal environment and epididymal function in the Rhesus monkey. *Macaca Mulatta*. University of Delhi.
3. Indra Mohini. Age related histochemical and biochemical changes in the metabolic profile of certain muscles of rat and fowl. University of Delhi.
4. Jain, Prakash Khubchand. The endocrine pancreatic regulation of carbon drate and lipid metabolism in the Indian palm squirrel, *Funambulus pennanti* (Wroughton). Nagpur University.
5. Kamala Bai, M. Studies on host-flea relationship (*Insecta—siphonaptera*). University of Kerala.
6. Khan, Akhtar Ali. Neuroanatomy and histology of the avian heart and associated blood vessels. Awadhesh Pratap Singh University.
7. Nandedkar, Rajesh Rambhau. Biology of a cobitid fish, *Lepidocephalichthys chemicals* (C & V). Marathwada University.
8. Pawar, Prabhakar Bhaskar. Studies on mucosubstances in gonads and associated reproductive organs of bats. Shivaji University.
9. Qureshi, N.A. Studies on the structure and physiology of the digestive tract in *Oxygaster bacaila* (Ham) and *Glossogotius* (Ham) in correlation with their food and feeding habits. Bhopal University.
10. Sinha, Rekha. Physiology of reproduction in *Uromastix hardwickii* (Gray). Vikram University.
11. Tiwari, Vijay. Neuro-histology and embryology of the cardiac conducting system of poikilothermal vertebrates. Bhopal University.
12. Venugopal, R. Varma. Studies on postelectro terms Nayari Roonwal and Verma 1971 and its probable pheromone producing centres (Isoptera : Kalotermitidae) University of Kerala.

Medical Sciences

1. Khan, Ziauddin. Studies on respiratory mycoses. University of Delhi.
2. Suresh, T.P. Neural control of cardiovascular function : Effect of volume changes. Bangalore University.

Agriculture

1. Bhatia, Nand Lal. Water management and nitrogen fertilization studies in three varieties of sugarbeet, *Beta vulgaris* L. and economics of beet and wheat cultivation. Haryana Agricultural University
2. Dharm Pal. Physico-chemical properties of soil crust in relation to seedling emergence under different management practices. Haryana Agricultural University
3. Saha, Arun Kumar. Soil moisture transmission characteristics as influenced by exchangeable sodium percentage and electrolyte concentration. Haryana Agricultural University.
4. Thorat, Murarao Ramesh. Response of high yield dwarf wheat, *Triticum vulgare* Vill variety safed lerna to nitrogen and phosphate fertilization based on soil test values. Mahatma Phule Krishi Vidyapeeth.

Veterinary Science

1. Ram Krishna, O. Studies on cardiac surgery following traumatic pericarditis in bovines. Haryana Agricultural University.

Home Science

1. Kamalanathan, Godavari Singaravel. Nutritional evaluation of selected unconventional foods on young children. University of Madras.

SOCIAL SCIENCES

Psychology

1. Jain, Chowdhary Vidyut Prabha. Factors contributing to academic under-achievement. Nagpur University.
2. Narayanan, S. A study of fatigue as related to extraversion-introversion and neuroticism in an industrial setting. University of Madras.

Sociology

1. Indukumari, M. Education and social status of muslim women in Kerala. University of Kerala.
2. Leela Devi, C. An analytical study of the social development of nursery school children. University of Kerala.
3. Roy, Kusum V. A sociological analysis of primary teachers in Marathi and Gujarati medium schools in Greater Bombay. S.N.D.T. Women's University.

Anthropology

1. Agrawal, Ishwar Chandra. Social anthropological study of Dewara. Ravi-shankar University.
2. Kodandaro, Meruvu. Family and Kinship among Jalaria of Coastal Andhra. Andhra University.

Political Science

1. Dam Sukumar. District administration in West Bengal since independence. University of Calcutta.
2. Jain, Rajinder Kumar. A study of the theory and practice of Sarvodaya. Vikram University
3. Lyngdoh Nongbri, Radhan Singh. Government and politics in Meghalaya. University of Gauhati.
4. Mishra, Anand Shankar. Indo-Pakistani conflict and British policy, 1947-1966. J.N. University.

Economics

1. Avneesh Kumar Singh. Taxation policy and economic growth in Madhya Pradesh during the plans. Vikram University
2. Chaturvedi, Shri Niwas. Economic aspects of Indian man-made fibres industry. Vikram University.
3. Dave, R.M. Dearness allowance in Indian Industry : A Study in Ahmedabad textile industry. Gujarat University.
4. Jain, Lila Ram. Methods of demand projections with special reference to the system of Addilog Engel functions. University of Delhi.
5. Ladd, Raghunandan. Madhya Pradesh mein sarak maal parivahan sangathan : Vishesh rup se Indore Sambhag se sambandit. Indore University.
6. Mallick, Suresh Chandra. Marketing of rice in Orissa. Orissa University of Agricultural and Technology.
7. Nagar, Manmohan. Regional imbalances in the economic development of Madhya Pradesh with special reference to Gwalior Region. Indore University.
8. Veena, D.R. Role of education in economic development of an under developed economy with special reference to Gujarat. Gujarat University.

Law

1. Sebastain, V.D. Legislative conflicts in India. University of Cochin.

Education

1. Chokshi, Mahendra Manilal. Comparative study of the programmes of elementary teacher education in the State of Gujarat and Philippines. M.S. University of Baroda.
2. Ramoji Rao, Y. A study of the relationship of a few selected variables to the academic achievement indices of secondary schools. University of Madras.

9. Samant, Prema A. A critical study of professional, familiar and economic conditions of women primary teachers working under the Bombay Municipal Corporation. S.N.D.T. Women's University.

Commerce

1. Vishwanath Prasad Singh. Economic benefits accruing due to collaboration among Canadian and Indian companies. Karnatak University.

HUMANITIES

Philosophy

1. Jha, Shyam Nandan. Kund Kund evam Shankar ke darshnik pakshon ka tulnatmak adhyayan. Vikram University.

Linguistics

1. Gopinathan Nayar, N. Descriptive grammar of early Manipravala works. University of Kerala.

2. Shukla, Tara. Murea aur us per chhatigarhi ka prabhav. Ravishankar University.

Literature

English

1. Tripathi, Jagdamba Prasad. Growth and development of American literary history movement. Awadhesh Pratap Singh University.

Sanskrit

1. Goyal, Uma Rani. Cultural study of Bhavishya Purana. University of Delhi.

2. Sanghi, Sneh Lata. Omen in the epics. University of Delhi.

3. Sapra, Neelam Devi. Culture as depicted in the Aranyakas. University of Delhi.

4. Sundaram, C.S. Contributions of Tamil Nadu to Sanskrit literature. University of Madras.

Pali

1. Dhadphale, Mohan Govind. Synonymic collocations in the Upitaka. A study. University of Poona.

Hindi

1. Dhaka, Savitri Kumari. Adhunik Hindi kahani par marksavad ka prabhav 1935 to 1970. University of Delhi.

2. Dubey, D.N.D. Goswami. Tulsidas aur Samrath Ramdas ke bhakti-bhavana ka tulnatmak adhyayan. University of Poona.

3. Gangal, Manjula. Manseter Tulsikavya mein bimbvidhan. University of Delhi.

4. Gaud, Chaganlal Bholaramji. Hindivi bhasha aur uska sahitya. Marathwada University.

5. Jain, Kamlesh. Ramdhari Singh Dinkar aur Umashankar Joshi ke kavva mein rashtriya chetna ka tulnatmak adhyayan. University of Delhi.

6. Kasturia, Usha. Rajasthani veergathatmak pavadoan mein lok-tatva. University of Delhi.

7. Kholia, Pansinh. Hindi kahani sahitya mein kalatmak ansprkriti evam vasturparkta ka vikas vishleshan. Sardar Patel University.

8. Kumar, Kamal Kumari. Chhayavad ke pariprekshya mein Ageya kavya. University of Delhi.

9. Malik, Memo. Rititar virkavya mein bimbvidhan from 1650 to 1850 A.D. University of Delhi.

10. Sharma, Jagdish Ram. Bhakti kalcen Hindi kavita ka sangeer shastriya adhyayan. University of Jammu.

11. Sharma, Roopkishore Brahmaddutt. Shuklottar Hindi saindantik alochana: Kavya ke sandarbh mein. University of Poona.

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13. Sharma Shobhan, Lakshmi Narain. Shri Hari Krishan Premi ke natakon ka shastriya anusheelan. Jiwaji University.

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Urdu

1. Tabish, Syed Ateequallah. Jadeediyaat aur Urdu nazm. Marathwada University.

Bengali

1. Bandyopadhyay, Sila. Pat and the patua. University of Calcutta.

Oriya

1. Khadanga, Maheswar. Oriya O' Hindi riti sahitya tulnatmak adhyayan. Utkal University.

2. Mahapatra, Shyamsundar. Oriya ballads. Visva-Bharati.

3. Satapathy, Nityananda. Forty years of modern Oriya poetry from 1920 to 1960. Utkal University.

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1. Pawar, Gopal Marutirao. The theory of humour: A critique with illustrative examples from Marathi literature. Marathwada University.

2. Sonare, Shyamrao Domaji. Comparative study of Eknath and Tulsidas. Nagpur University.

Gujarati

1. Mehta, D.P. Themes of Gujarati novels upto 1940 and their relevance to contemporary history. Gujarat University.

Arabic & Persian

1. Mohammed Shafiqur Rahman. A critical study of the historical novels of Jurji Zaidan. University of Delhi.

Telugu

1. Krishna Murthy. Kavi Samayamulu: Poetic conventions. Osmania University.

Geography

1. Palanivelu, C. Gobichettipalayam Taluk: A study in the changes in agricultural land use. University of Madras.

2. Sivagnanam, N. The relationships between functional hierarchy of settlements and patterns of information diffusion in Nilgiris District. University of Madras.

3. Swaminathan, E. Market centres and consumer preferences within Coimbatore metropolitan area. University of Madras.

4. Yadav, Chiranjee Singh. The spatial patterns of residential land use structure in Urban Delhi. University of Delhi.

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1. Divien, Emmanuel. The development of Tamil Society in Pondicherry 1707-1898. University of Madras.

2. Mahajan, Hari Om. Judicial administration in the Jammu and Kashmir State, 1885-1947. University of Jammu.

3. Padmavathi, Yerramsetty. Public administration in early mediaeval Andhra, A.D. 1000—A.D. 1350. Karnatak University.

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- *New look at commonwealth university co-operation : Report on a seminar, 1973.* London, Author, 1973. 97p.
- *Quality education for national development - the role of the adviser. Report of a regional symposium, 1971* London, Author, 1973. 112p.
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(Contd. from page 3)

- (b) Family life education and quality of life.
- (c) Health Sexuality. It should emphasise knowledge about the physiography of sex and the reproductive process as well as all elements leading to healthy sexual life.

At the college stage and in the universities more specific and academic orientation should be possible in the various subject areas specially in the fields of languages, economics, sociology, biological sciences and culture. In this context, it may be worthwhile to consider introducing suitable population education material in the various subject areas either in an integrated form or as cocurricular items or both. I, however, have strong feelings against the introduction of population education as a separate subject. To start with universities may think of initiating population Education clubs & study camps for a discussion of population and allied problems.

Some of the orientation may also have to be imparted in the shape of extension lectures, debates symposia and drama. Institutions like N.S.S. & N.C.C. could also be utilised to make population education a meaningful programme in addition to their usual activities.

A national programme of population education

will need continuous research and evaluation to constantly replenish and strengthen it. A perennial flow of newer knowledge and instructional materials will have to be maintained. The leadership role of universities should naturally include work in this direction for which proper provision has to be made. And above all the universities have to help develop the necessary expertise and the academic resources for carrying out population education programmes at the various levels. It will be the universities that will have to eventually take up the responsibility of equipping and helping teachers to tackle the problem at the lower levels of education.

Continuing education is a new dimension in the field of university education. Population awareness and family life education may be included as important items in such programmes for the adult and the out-of-school youth. Help could be taken from the common mass media.

In the end it may be worthwhile to emphasise the basic realisation that the main purpose in having population education programmes at the various levels, is to enable social groups to move towards a situation wherein the limitations and needs of the society are harmonised with the welfare and ambitions of the individual family unit.

CLASSIFIED ADVERTISEMENTS

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Applications (six copies in the prescribed forms), are invited for the below mentioned posts in the Karnatak University; and Constituent Colleges of the Karnatak University, Dharwar.

Application forms can be had from the Publication Department (Press Building), Karnatak University, Dharwar, on payment of Rs. 2/- per form which should be credited to State Bank of India, Karnatak University Campus, Dharwar and the Challan towards the payment of the same should be presented.

Candidates desirous of obtaining the forms by post, should send a self addressed 28 x 12 Cms cover affixing 00 75 paise Postal Stamps along with a Crossed Demand Draft Or Crossed Postal Order for Rs. 12/- made payable to State Bank of India, Karnatak University Account, Dharwar.

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1 Professor	One
2 Reader	Two
3 Lecturer	Two

II Post-Graduate Departments at Dharwar:

2 Reader in English	One
2 Reader in Geography	One
3 Reader in Kannada (Specialised in Jaina Literature)	One
4 Lecturer in Anthropology (Specialised in Physical Anthropology)	One
5 Curator of Museum.	One
6 Lecturer in Political Science	One

III. Post-Graduate Department of Geology & Mineral Processing at Nandihalli, Sandur:

1. Lecturer in Mechanical Engineering	One
2 Lecturer in Electrical Engineering	One
3 Lecturer in Analytical Chemistry	One
4 Lecturer in Drilling	One
5. Lecturer in Applied Geology	Two

IV. University College of Geology at Nandihalli, Sandur:

1 Lecturer in Physics	One
2 Lecturer in Statistics	One
3. Lecturer in Mathematics	One
4 Lecturer in English	One
5 Lecturer in Kannada	One
6 Lecturer in Geology	Three

V. Karnatak Arts College, Dharwar

1. Lecturer in Statistics	One
2. Lecturer in Philosophy	One
3. Lecturer in Hindi	One
4. Lecturer in Linguistics	One
5. Lecturer in Fine Arts	One
6. Instructor in Music (Sitar)	One

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1. Lecturer in Physical Chemistry	One
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Curator: Rs. 400-40-800-50-950
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Professor:
A Doctorate degree in Economic Policies Managerial Economics subject or published work of equivalent standard with a 1st Class either at graduate or Post-graduate level, with a wide knowledge in the field of related discipline and teaching experience at least 10 years for Post-graduate Classes or experience in organisation of small scale and large scale Industries or personnel management.

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"For the post of Professor and Readers, the candidates should have the capacity to carry out independent research and guide students for research degrees."

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Professor:

Specialisation and or experience in organising, staffing, training of personnel promotion of Industries/Industrial Management preferred. Experience in abroad will be considered an added qualification.

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B.A. or B.Sc. of any Statutory University and Sangeeta Alankara Or

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For the post of Lecturer in the constituent College, A Lady candidates willing to undergo N.C.C. training and to work as Lady N.C.C. Officer in the College will be preferred.

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Candidates selected for the above posts, may be posted in the beginning or at a later date to work either at Dharwar or at any of the Post-Graduate Centres Viz. Gulbarga, Karwar, Nandihalli (Sandur) though the posts are shown as existing at a particular place at the time of advertisement.

Appointments in each category of the above posts will be reserved for Scheduled Castes, Scheduled Tribes, Backward-Tribes and other Backward Classes to the extent of 15%, 3%, 3% and 28% respectively. However, if suitable candidates to the extent of reserved posts are not available to that extent, other candidates found suitable, may be selected.

Applications should be sent by Registered Post A.D., so as to reach the Registrar, Karnatak University, Dharwar- 580003, not later than 31st December, 1976.

Candidates must be prepared to appear for personal interview, if called for. No. T.A. and D.A. will be paid to the candidates for their interviews.

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Rs. 400-40-800-50-950 (Non-pandey).

- (i) Must possess a Master's degree in Arts, Science or Commerce with atleast three years experience of working on a post not lower in rank than that of a Superintendent (Senior) in any University, Secretariat or other Government office. Competence to note and draft satisfactorily in Hindi & English is essential. Preference will be given to one:

- (a) Who has additional qualifications in accounts either as a Diploma in Accounts of a recognised Institution or a certificate of successful completion of Accounts Training conducted by the M.P. Govt; and/or
- (b) Who has experience of work connected with the administration/Finance functions of a University, college or department

(B) Assistant Librarian: Rs. 400-40-800-50-950 (N.P.)

- (a) Must possess a Master's degree in Arts, Science or Commerce and also a Second Class Bachelor's degree. Diploma (one year) in Library Science with atleast three years' experience of working on a post not lower in rank than that of a Senior Technical Assistant in any University College or Educational Institution.

Or

- (b) Must possess a Bachelor's degree in Arts, Science or Commerce and also a second class Master's degree in Library Science with atleast three years' experience of working on a post not lower in rank than that of a Senior Technical Assistant in any University College or Educational Institution.

3. The above scales carry with them dearness allowance and the benefit of Contributory Provident Fund in accordance with the rules of the University. A higher start can be given to deserving candidates.

4. Applications should be made on plain paper stating name, date of birth, qualifications, experience etc. alongwith attested copies of certificates, Degrees, testimonials etc. & postal order/demand draft of Rs. 5/- (Rs. Five only) as application fee, payable to the Registrar, University of Indore, Indore-1 (cheques will not be accepted), so as to reach the undersigned on or before the 28th December 1976. The envelope containing application should be marked "Application for the post of Asstl. Registrar, Admn/Finance or Assistant Librarian", as the case may be.

5. Candidates already in service should apply through proper channel.

6. Candidates selected for interview will be required to travel at their own expenses.

7. The University reserves the right to fill-up or not to fill-up the posts advertised and/or to call only selected candidates for interview.

REGISTRAR

SAURASHTRA UNIVERSITY

Applications in the prescribed forms are invited for the undermentioned posts in the various departments of the University. Application forms alongwith detailed requirements of qualifications and experience for these posts will be available from the Registrar, Saurashtra University, University Campus, Katakad Road, Raikot-5 on sending a self addressed envelope of the size 23 cm. x 11 cm. with postage stamps worth Rs. 1.15.

Applications (seven copies) accompanied by Indian Postal Order for Rs. 5/- crossed in favour of the Registrar, Saurashtra University, should reach this office on or before 10-1-1977. Those who have applied in response to the earlier advertisement need not apply again.

1. Department of Bio-Sciences:

- (a) Professor: 1 post--Basic degree in Botany, Zoology or Experimental Biology. Specialization in Physiology of Plants animals with special reference to country's needs and stresses.

- (b) Lecturer: 3 posts--Basic degree in Botany, Zoology or Experimental Biology. Specialization in Cytogenetics, Environmental Biology including Behavioural Ecology, Morphology and Embryology of plants animals, Marine algal fish resources and systematics of plants or animals, cell biology, Bio-Physics and Bio-Chemistry.

2. Department of Chemistry:

- (a) Professor: 1 post--Theoretical Inorganic.
- (b) Reader: 1 post--Qualified to teach Marine Chemistry.
- (c) Lecturer: 1 post--Qualified to teach Marine Chemistry.

3. Department of Economics:

- (a) Professor: 1 post--Preferably in Development / Quantitative Economics
- (b) Reader: 2 posts--Preferably in Quantitative Management/ Agricultural Economics.
- (c) Lecturer: 3 posts.

4. Department of History:

- (a) Professor: 1 post--Preferably in Modern Indian History.
- (b) Lecturer: 2 posts.

5. Department of Sociology:

- (a) Professor: 1 post--The incumbent is required to develop Rural Sociology in Saurashtra.
- (b) Lecturer: 2 posts.

6. Department of Gujarati Language and Literature:

- (a) Reader: 2 posts--Preferably in Literary criticism/ Folk Literature/ Linguistic Research.

(b) Lecturer: 1 post—Preferably in Literary criticism / Folk Literature.

Pay Scales:

- (1) Professor: Rs. 1100-50-1300-60-1600.
 (2) Reader: Rs. 700-50-1250.
 (3) Lecturer: Rs. 400-40-800-50-950.
 These scales are likely to be revised as under:

- (a) Professor: Rs. 1500-60-1800-100-2000-125/2-2500.
 (2) Reader: Rs. 1200-50-1300-60-1600-
 assessment-60-1900.
 (3) Lecturer: Rs. 700-40-1100-50-1300-
 assessment-50-1600.

Reservation for Scheduled Castes and Scheduled Tribes will be 5% and 10% respectively.

Age ordinarily not exceeding 55 years. The posts are permanent and carry benefit of Contributory Provident Fund as per University rules. Dearness Allowance and House Rent Allowance will be paid as per University Rules. Higher initial salary in the scale may be considered in case of exceptionally qualified and experienced persons. Qualifications and experience relaxable in special cases. Candidates in employment must submit their application through their present employer. Those knowing Gujarati and/or Hindi will be preferred.

V. M. Desai
 REGISTRAR

ALIGARH MUSLIM UNIVERSITY
 Advertisement No. 21 76-77

Applications, on the prescribed form, are invited for the post of Reader in Hindi (Fiction and Hindi Prose), sanctioned under the Fifth Five Year Plan Scheme, in the scale of Rs. 1200-50-1300-60-1900 plus allowances.

Qualifications:

(a) A first or a high second class Master's Degree in the subject concerned of an Indian University or equivalent foreign qualification; (b) A research Degree of a doctorate standard or published work of a high standard; and (c) At least five years experience of teaching postgraduate classes and some experience of guiding research.

Desirable:

Specialisation in Fiction and Hindi Prose. Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is 24th December, 1976. Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

Jamalur Rahman
 REGISTRAR

ALIGARH MUSLIM UNIVERSITY
 Advertisement No. 19/76-77

Applications, on the prescribed form, are invited for the following posts sanctioned under the Fifth Five Year Plan Scheme:

Scale of Pay:

- (i) Professor: Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.
 (ii) Readers: Rs. 1200-50-1300-60-1900 plus allowances.
 (iii) Lecturers: Rs. 700-40-1100-50-1600 plus allowances.

Name of Posts Specialisation

1. Professor of Physical Chemistry.
 Chemistry :
 2. Professor of Socio-Linguistics.
 Linguistics :

Qualifications ordinarily required:

(a) A first or a high second class Master's Degree in the subject concerned of an Indian University or equivalent foreign qualification; (b) A research degree of doctorate standard or published work of a high standard; and (c) At least 10 years experience of teaching postgraduate classes and guiding research.

3 Professor of Sunni Theology.

Qualifications ordinarily required:

(a) A first or high second class Master's degree in Sunni Theology, Arabic or Islamic Studies. Or Fazil of a well-reputed Madrasah with a good knowledge of English; (b) At least ten years experience of teaching postgraduate or equivalent higher classes in a College, University or a well-known Madrasah; and (c) Ph.D. Degree or any published work of higher scholarly merit.

4 Professor of Shia Theology.

Qualifications ordinarily required:

(a) A first or high second class Master's Degree in Shia Theology Arabic or Islamic Studies. Or Fazil of a well-reputed Madrasah with a good knowledge of English; (b) At least ten years experience of teaching postgraduate or equivalent higher classes in a college, University or a Well-known Madrasah; and (c) Ph.D. Degree or any published work of higher scholarly merit.

5 Reader in Chemistry: Analytical Chemistry.

6 Reader in Chemistry. Biochemistry

7. Reader in Chemistry,

(Women's College) : General

8 Reader in Zoology : Ichthyology.

9. Reader in Sociology : General

10 Reader in Education

(Department) : General

11. Reader in Education

(Women's College) : General

Qualifications ordinarily required:

(a) A first or a high second class Master's Degree in the subject concerned of an Indian University or an equivalent foreign qualification; (b) A research degree of a doctorate standard or published work of a high standard; and (c) At least five years experience of teaching postgraduate classes and some experience of guiding research.

12. Reader in West Asian Studies : Modern Arabic.

Qualifications ordinarily required:

(a) A first or a high second class Master's Degree in the subject concerned of an Indian University or an equivalent foreign qualification; (b) A research degree of a doctorate standard or published work of a high standard; and (c) At least five years experience of teaching postgraduate classes in Modern Arabic and some experience of guiding research. Knowledge of spoken Arabic.

Desirable:

Training of teaching Arabic through Modern methods and/or a few years residence in any West Asian Country and experience as a Translator/Interpreter of Arabic in a reputed institution/organisation.

13. Lecturer in West Asian Studies :

Economics

14. Lecturer in West Asian Studies :

Geography

Qualifications ordinarily required:

Consistently good academic record with a first or high second class (B+) Master's Degree in the relevant subject or an equivalent degree of a foreign University.

Desirable:

- (i) A Doctor's Degree or published work of an equally high standard;
 (ii) Teaching experience of Degree/Postgraduate classes; and

Economics: Preference will be given to candidates who have some research experience and have worked on any aspect of West Asian Economics and/or have experience of teaching West Asian Economics.

Geography: Preference will be given to candidates who have worked on any aspect of Arabic Geography and have some knowledge of the Geography of West Asia and / or experience of teaching West Asian Geography.

Provided that if a teacher appointed as Lecturer is not a Ph.D. at the time of appointment, it would be obligatory that he finishes his Ph.D. within five years of his appointment or gives evidence of equivalent research work. Further, if he does not fulfil the above requirements within the period of five years of his appointment, his increment will be stopped till such time as he fulfils these requirements.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is 15th December, 1976. Incomplete applications and those received later may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

Jamalur Rahman
 REGISTRAR

ALIGARH MUSLIM UNIVERSITY

Advertisement No. 20/76-77

Applications, on the prescribed form, are invited for the following posts:

1. Reader in Costume Design & Dress Making (Women's Polytechnic)
Pay Scale: Rs. 1200-50-1300-60-1900 plus allowances.

Qualifications:

At least a second class Master's Degree in Textile and Clothing or its equivalent with five years professional/teaching experience.

Or

At least a second class Bachelor's Degree in Home Science or its equivalent with seven years experience of which two years in professional tailoring/Costume designing.

Note: Lady candidates will be preferred and the period of experience in their case will be relaxable by one year.

2. Lecturers in (i) Fine Art (Temporary), General Education Centre; (ii) Linguistics (Temporary but likely to become permanent); (iii) Botany (Temporary); and (iv) Psychology (Temporary but likely to become permanent).

Pay Scale: Rs. 700-40-1100-50-1600 plus allowances.

Qualifications:

Consistently good academic record with first or high second class (B+) Master's Degree in the subject concerned or an equivalent degree of a foreign University.

Desirable:

- (1) A Doctor's Degree or Published work of an equally high standard;
- (2) Teaching experience of Degree/Postgraduate classes; and

Linguistics: Knowledge of Translational Generative Grammar and Semantics. Published research work on Urdu Linguistics.

Psychology: Research experience in one of the following areas: (a) Criminal Psychology; (b) Psychometrics; (c) Social Psychology and Personality.

Provided that if a teacher appointed as Lecturer, is not a Ph.D. at the time of appointment, it would be obligatory that he finishes his Ph.D. within five years of his appointment or gives evidence of equivalent research work. Further, if he does not fulfil the above requirements within the period of five years of his appointment, his increment will be stopped till such time as he fulfils these requirements.

3. Lecturer in Mansaf Aza (Physiology) A.K. Tibbiya College:
Pay Scale: Rs. 700-40-1100-50-1600 plus allowances.

Qualifications:

(1) BUTS/BUMS/BUMMS/MBBS or its equivalent recognised by this University; (2) At least three years teaching experience in some recognised institutions; and (3) knowledge of Science atleast upto the standard of Intermediate in case of Unani Graduates. Knowledge of Urdu, English.

Desirable:

Published work.

4. Associate Lecturer in Qirat, Department of Sunni Theology:
Pay Scale: Rs. 650-30-740-35-880-40-960 plus allowances.

Qualifications:

(a) Certificate in Rewayat-e-Hafiz and Sanad in Qirat-e-Saba from a well known Qirat Madrasa. (b) Should be Hafiz-i-Quran and a good knowledge of Arabic Language.

Desirable:

At least five years teaching experience of Qirat in a renowned institution.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is 25th December, 1976. Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

Jamshid Rahman

REGISTRAR

CENTRAL INSTITUTE OF EDUCATION

33-Chhatra Marg : Delhi 7

Applications are invited for the post of Reader in the Central Institute of Education (a Post-Graduate maintained Institution of the Delhi University) in the grade of Rs. 1200-50-1300-60-1900. Dearness Allowance, City Compensatory Allowances and retirement benefits (in the case of permanent incumbents) are admissible in accordance with the University rules in force from time to time.

Essential Qualifications:

Consistently Good academic record with first or high second class Master's Degree in Education with a Doctorate Degree or equivalent published work. Independent published work (in addition to the published work mentioned above) with at least 5 years' teaching experience in Honours/Post-Graduate Classes Essential.

Special/Desirable Qualifications:

- (i) The candidates should have specialised in one of the following areas:
 1. Educational Administration;
 2. Comparative Education;
 3. Principles of Curriculum Construction;
 4. Teacher Education
 5. Educational and Vocational Guidance
- (ii) Experience in guiding Ph.D. students in Education.

The prescribed application form can be had from the office of the Central

Institute of Education either personally or by sending a self-addressed envelope with postage stamps worth Rs. 2.40.

Selected candidates will have to produce the original documents relating to their age, qualifications, experience, etc. before joining the appointment.

Application accompanied by attested copies of the Degrees and other certificates and published research articles etc. should reach the undersigned not later than December 11, 1976.

Note: 1. It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases on the recommendations of the Selection Committee.

2. Canvassing in any form by or on behalf of the candidate will disqualify.

3. Candidates called for interview from outside Delhi will be paid contribution towards Travel Expenses equivalent to 1½ second class Rail Fare as per rules.

PRINCIPAL

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O. IIT, POWAI, BOMBAY-400076

Advertisement No. 855/76

Applications are invited for a permanent post of EXECUTIVE ENGINEER (ELECTRICAL) at this Institute in the prescribed form obtainable from the Registrar, Indian Institute of Technology, P.O. IIT, Powai, Bombay-400 076 on request accompanied by self addressed envelope (23 cm x 10 cm). Persons employed in Government/Semi-Government Organisations or Educational Institutions must apply through proper channel. Completed application together with the requisite copies of certificates and crossed postal order for Rs. 7.50 (Rs. 1.87 for SC/ST candidates) as application fee should be sent to the Registrar, Indian Institute of Technology, P.O. IIT, Powai, Bombay-400076 on or before 20-12-1976. Candidates called for interview will be paid Second Class Rail Fare from the place of their residence to Bombay and back by the shortest route.

- (1) Post : Executive Engineer (Electrical)
- (2) Scale of Pay : Rs. 1100-50-1600 (plus usual allowances such as DA, CCA etc as per rules of the Institute)
- (3) Age : Not less than 32 years.
- (4) Qualifications & Experience :

Good Bachelor's degree in Electrical Engineering with at least seven years'

experience of which five years must have been in the executive position concerning capital works and maintenance of Electric supply and distribution system. Should be able to co-ordinate the various supply growth plans. Should have experience in the maintenance of water supply system (the pumping, both water and sewage), Air-conditioning and Refrigeration loads. The Institute has a small fleet of light & heavy vehicles. The incumbent is also expected to supervise the vehicle maintenance unit. Preference will therefore, be given to a candidate having experience both in Electrical and Mechanical Engineering.

HIMACHAL PRADESH UNIVERSITY SIMLA-171005

'RECRUITMENT BRANCH'

Advertisement No 16/76

Applications are invited for the following posts in the Agricultural Complex :

A. Department of Agronomy

1. Associate Professor of Agronomy.
2. Assistant Agronomist.
3. Junior Agronomist.
4. Research Assistant
5. Lecturer.

B Department of Genetics & Plant Breeding

- 6 Professor of Genetics & Plant Breeding.
7. Research Officer (Plant Breeding).
8. Assistant Wheat Breeder
9. Assistant Soyabean Breeder.
- 10 Assistant Agronomist (Pulses).
- 11 Assistant Geneticist (Pulses).
12. Assistant Research Officer (Plant Breeding)
13. Assistant Professor of Plant Breeding & Genetics.
14. Assistant Analytical Chemist desirably with experience of chemical evaluation on forage crops
15. Assistant Agronomist (Forage Production) desirably with experience in forage crop research.
16. Assistant Agronomist (Rice) desirably with three years experience in rice agronomy
17. Assistant Rice Breeder desirably with experience on rice breeding.
18. Assistant Maize Breeder desirably with experience in maize breeding.
19. Research Assistant.

C. Department of Forestry

20. Professor of Tree Breeding.
21. Associate Professor desirably with experience in forestry Botany or Forest Genetics or Forest Chemistry or Silviculture.

22. Forest Economist desirably with experience in Forest Economics.

23. Junior Agronomist.

24. Junior Physiologist.

25. Research Officer (Statistics) in Forestry desirably with experience in designing experiments on trees.

26. Research Assistant (Agronomy)

27. Research Assistant (Horticulture)

28. Research Assistant (Cytogenetics).

D. Department of Soil Science & Agricultural Chemistry

29. Associate Professor

30. Agronomist with specialization in water management.

31. Junior Agronomist.

32. Research Assistant.

E. Department of Extension Education

33. Associate Professor.

34. Assistant Extension Specialist Class-II (Agronomy)

35. Assistant Extension Specialist (SM) in any discipline of Agronomy, Plant Protection, Horticulture, Animal Science, Soil Science.

36. Assistant Extension Specialist (Agronomy)

37. Assistant Extension Specialist (Horticulture)

38. Assistant Extension Specialist (Soil Science & Chemistry).

- 39 Assistant Extension Specialist (Plant Protection)

F. Department of Agricultural Economics & Sociology

- 40 Associate Professor in Agricultural Economics.

41. Assistant Professor in Sociology.

G. Department of Vegetable Crops & Floriculture

42. Sugarbeet Breeder.

43. Floriculturist

44. Associate Professor of Olericulture.

45. Olericulturist.

46. Vegetable Botanist

47. Assistant Olericulturist.

- 48 Research Assistant.

H. Department of Hindi

- 49 Assistant Professor in Hindi.

I. Department of Botany & Plant Pathology

- 50 Assistant Microbiologist.

51. Research Assistant (Botany).

52. Research Assistant (Plant Pathology)

J. Department of Horticulture

53. Junior Virologist.

54. Junior Tuber Botanist.

55. Research Assistant.

- 56 Research Assistant (Food Technology).

57. Lecturer.

K. Department of Mathematics & Statistics

58. Lecturer in Statistics.

L. Department of Animal Science

59. Junior Animal Health Specialist.

60. Extension Specialist (Animal Sciences).

M. Department of Entomology-Zoology

61. Entomologist (Rice).

62. Junior Entomologist (Rice)

63. Assistant Chemist.

64. Assistant Nematologist.

65. Junior Entomologist.

66. Research Assistant (Economic Entomology).

67. Research Assistant (Chemistry).

68. Research Assistant (Apiculture).

69. Research Assistant (Toxicology)

N. Office of the Dean, Agricultural Complex

70. Technical Assistant in any Agriculture subject.

Qualifications & Pay Scales :

- (i) For posts at Sl. No. 6 and 20 :
Rs 1500-60-1800-100-2000-125/2-2500.

Ph.D. or an equivalent degree ; five years' post-graduate teaching/teaching of honours classes or five years' post-doctoral research in a University or a Research Institute ; and distinguished research work.

- (ii) For posts at Sl. No. 1, 7, 21, 22, 29, 30, 33, 40, 42 to 46 and 61 :
Rs. 1200-50-1300-60-1900.

Ph.D. or an equivalent degree; two years' post-graduate teaching/teaching or honours classes or post-doctoral research in a University or a Research Institute ; and distinguished research work.

- (iii) For posts at Sl No. 2, 3, 8-to 18, 23 to 25, 31, 34, 35, 41, 47, 49, 50, 53, 54, 59, 60 and 62 to 65 : Rs. 700-40-1100-50- 600.

- (a) Ph.D. or an equivalent degree or published work of an equally high standard in the subject concerned ; and (b) having consistent good academic record with first or High Second Class (B plus) Master's degree in the subject concerned or in an allied subject, or an equivalent degree of a foreign University.

- (iv) For posts at Sl. No. 4, 5, 19, 26 to 28, 32, 36 to 39, 48, 51, 52, 55 to 57, 58, and 66 to 70 :
Rs. 700-40-1100 EB-50-1300- Assessment-60-1600.

(a) M. Phil or an equivalent degree or published work indicative of capacity for independent research work ; and (b) having consistent good academic record with First or High Second Class (B plus) Master's degree in the subject concerned or an allied subject, or an equivalent degree of a foreign University.

The above scales carry with them dearness allowance and benefit of C.P.F./G.P.F. etc. in accordance with the rules of the University.

Provided that the Executive Council may, if necessary, relax any qualifications at (b) above on the recommendations of

the Vice-Chancellor or the Selection Committee, as the case may be, if the research work of a candidate as evident either from his thesis or from his published work is considered to be of a very high standard :

Provided further that a candidate possessing a consistent good academic record may be appointed, if a candidate with qualifications at (a) above is not available or is not considered suitable, on the condition that he will have to attain the required qualifications, within five years of his appointment, failing which he shall not earn future increments until he fulfils the conditions.

In case of selection and appointment, the persons concerned will have to serve the University at least for a period of two years.

Higher start in the grade is admissible on the basis of special qualifications and experience.

If the candidates are not found suitable for a higher post they can be considered for appointment to lower post. Persons selected can be posted anywhere in Himachal Pradesh.

Applications should be made on the prescribed form obtainable from the Officer Incharge Recruitment by sending a self-addressed stamped envelope (size 23x10 cms) and applications complete in all respects together with a crossed postal order of Rs. 7.50 (not applicable in case of those applying from outside India), drawn in favour of the Finance Officer, Himachal Pradesh University, should reach the undersigned by the 31st December, 1976. Persons applying for more than one posts should send a separate application for each post.

Note :—Persons who have applied for these posts in response to our

advertisement Nos 17/75, 7/76 & 11/76 need not apply again. They may, however, send additional information, if any. Applicants for the posts at Sl. No. 41, 43, 53 & 63 in response to our advertisement No. 17/75 and for the posts of Research Assistants, Lecturers and Assistant Extension Specialists in response to advertisement No. 1/76 of the Dean, Agricultural Complex, will have to apply afresh.

Sd/-

(D C. Pant)

Officer Incharge Recruitment

INDIAN INSTITUTE OF TECHNOLOGY KANPUR IIT POST OFFICE KANPUR-208016

CORRIGENDUM to Advertisement No 20/76 for the posts of Assistant Professors Lecturers in the Department of Mathematics, IIT Kanpur

The Department is also seeking individuals with ability and aptitude for teaching, research and development in the area of "Algebra" in addition to the areas of interest advertised earlier.

Applications should be made on the prescribed forms, obtainable free of cost from the Registrar of the Institute sending a self-addressed unstamped envelope of 25 x 10 cm. (Applications should be accompanied by a Indian Postal Order of Rs. 7.50 (Rs. 1.57 for SC/ST candidates).

All applications should reach the Registrar, Indian Institute of Technology, IIT Post Office Kanpur-208016 U P (India) on or before 31st December, 1976.

THE UNIVERSITY OF KASHMIR, SRINAGAR Advertisement Notice

Applications (seven copies) to reach the undersigned by 31st December, 1976 are invited for the following posts :—

S.No.	Post	Grade
1.	Professor in Commerce and Education	Rs.1500-60-1740-80-1900
2.	Readers in Physics, Chemistry, Botany, Mathematics, Political Science, Hindi, Urdu, Law and Persian (temporary).	Rs.1100-50-1300-75-1600
3.	Lecturers in Physics, Chemistry, Botany, Zoology, Mathematics, Political Science, English, Hindi, Urdu, Law, Persian, Education and Russian Language.	Rs. 700-40-900-EB-40-1100-50-1300

The application forms can be had from the office of the Registrar, University of Kashmir, Hazratbal Srinagar-190006 on cash payment of Rs. 6/- or by sending crossed postal order drawn in favour of the Registrar cashable at Srinagar Post Office.

The details in respect of special and desirable qualifications, requirements and number of vacancies for each post can also be had from the office of the Registrar.

While making a request for the application forms the candidates are advised in their own interest to send a detailed curriculum vitae to the undersigned on a plain paper.

Sd/- D/s
REGISTRAR

(Continued from Page 23)

Mining & Metallurgy

Experiments in chemical Metallurgy
Heat transfer in casting & other phase change problems
Technical Convention of the Computer Society
3rd Programme on Mining for Non-Mining executives
Transfer of technology in Mining and Metallurgy industries

4-19 Dec 1976
13-24 Dec. 1976
9-12 Jan 1977
11-18 Dec. 1976
December 1976

Science

Annual Convention of Chemists 1976
The Biology of man in North India
1st International Symposium on Avian Endocrinology
International Oceanographic Commission
International Symposium on Solid State Physics
National Symposium on Coordination Chemistry
Refresher course in Botany
2nd National Symposium on Cryogenics
Seminar on Exploration Geophysics in India
Short winter course in Estuarine and Marine Environment for college teachers of Geology
6th International Paleontological conference
64th Indian Science Congress
Symposium on Bio-conversion of Cellulosic materials into energy, chemicals & Microbial protein
Symposium on Vitamin and carrier function of polyprenoids

12-15 Dec. 1976
26-29 Dec. 1976
10-15 Jan 1977
Feb 1977
10-14 Jan 1977
17-19 Jan 1977
15 Nov.-15 Dec. 76
8-10 Dec. 1976
3-5 Feb. 1977
20-26 Dec. 1976
29 Dec.-5 Jan. 77
3-7 Jan 1977
7-23 Feb 1977
9-11 Dec 1976

Sociology

All India convention of social scientists and Inter-disciplinary seminar on small and middle size towns in developing countries: Problems and prospects
All India Seminar on Legal Aid to the poor
Evaluation of Family Planning & other health programmes
Population policy in India and its consequences.
Seminar on Small Towns

Feb. 1977
Dec. Jan. 1976-77
21-23 Jan. 1977
28 Feb.-2 March 77
20-23 Feb. 1977

[Courtesy : The British Council]

PANJAB UNIVERSITY
Chandigarh

Applications are invited for the following temporary posts for Cyclotron and Nuclear Physics Laboratories in the Department of Physics, so as to reach the Registrar, Panjab University Chandigarh by 10th Dec., 1976 alongwith postal order of Rs. 7.50

1. **Research Associates** 2
Pay : On a fixed pay between Rs. 700 - to Rs. 1100 - depending on the merits of the case
Qualifications : 2nd class M.Sc. with Ph.D. or equivalent research work. Experience in Experimental Theoretical, pure or applied Nuclear Physics
2. **Senior Technical Assistants** 2
Scale of Pay : Rs. 1200-50-1700-60-1900 plus allowances as per University rules
Qualifications for one post : M.Sc. (Physics) or B.E. (Electrical or Electronics). Experience of handling or working with an accelerator will be desirable. Knowledge of computerised electronics will be considered an additional qualification
Qualification for the 2nd Post : M.Sc. (Physics) or B.E. (Electronics). Experience in handling pulse electronics with transistors and IC's is highly desirable
 Qualifications releasable in the case of persons with long experience in the field
3. **Research Scholars** 2
Pay : Rs. 400 - p.m. fixed
Qualifications : First class M.Sc. in Physics for research in experimental theoretical nuclear physics

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date will not be entertained. Serving employees may, however, send their applications on the prescribed proforma direct to the University. They may route another copy through their departments. They will be allowed to present themselves for interview only on the production of a

'No objection certificate' from their employers. Canvassing in any form will disqualify a candidate.

Application forms can be obtained from the office of the Finance & Development Officer, Panjab University, Chandigarh by making a written request accompanied with self-addressed stamped envelope of 23x10 cms

INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR

Advertisement No. R 21 75

Applications are invited for the undermentioned posts in the computer centre at the Indian Institute of Technology, Kharagpur (West Bengal).

The Institute has acquired a large computer Revad-1030 and the centre is offering computing facilities both inside and outside the Institute. It is proposed to extend the activities of the centre to cover academic programmes, both at the undergraduate and post-graduate levels

POSTS :

- I. **Professor (System Management)**
Rs. 1500-60-1800-100-2000-125-2-2500 -Plus usual D.A. at admissible rates
- II. **Assistant Professor (System Programming)**
Rs. 1200-50-1300-60-1900 Plus usual D.A. at admissible rates
- III. **Lecturer (Programming)**
Rs. 700-40-1100-50-1600 -Plus usual D.A. at admissible rates
- IV. **Engineer (Shift)**
Rs. 700-40-1100-50-1300 -Plus usual D.A. at admissible rates

AGE

- I. Preferably below 50 years
- II. Preferably between 30 and 45 years
- III & IV. Preferably between 25 and 35 years

Qualifications, Experience & Duties

For Professor (System Management)

Bachelor's degree in Electrical or Electronic Engineering followed by post-graduate degree in Computer Science or technology with at least seven years experience including at least two years in system design

He will be responsible for proper operation, maintenance and utilization of the computer systems. He shall co-ordinate the work of hardware, software and operations groups for smooth running of the centre. He will take part in training programs

A & B Persons having long experience in managing computer systems but not having the educational Qualifications prescribed above may

also apply but the institute reserves the right to offer them appointment in a different grade of salary and/or different designation.

For Assistant Professor (System Programming)

Master's degree in Computer Science/Engineering/Applied Science with 5 years of experience in Programming and Processing.

He will be responsible for maintaining all operating and application software, assist internal and other users in system analysis. He will help the centre in organising short term and other training courses

For Lecturer (Programming)

A good bachelor's degree in Engineering followed by post-graduate degree or Master's degree in applied science with at least two years experience in writing major application packages in assembly language, fortran, cobol and/or PL/I programs. Expertise in at least three of the languages.

He will be responsible for writing computer programs, helping the internal and other users in debugging their programs and help in organising computer laboratory and training courses.

For Engineer (Shift)

Bachelor's degree in electrical or electronic engineering with at least three years experience in maintenance, design and or development on a modern computer system

He will be responsible for hardware maintenance and assist the senior Engineer in training inventory of spare-parts etc. He may be assigned shift duty

Experience requirements may be relaxed for candidates with post-graduate qualifications in computer technology

A & B Intending candidates must have high academic background and must have experience particularly in management, operation and maintenance of large computer. Preference will be given to those having long experience in a large computer installation in a University Research Institution inside or outside India.

Applications form may be had from the Registrar on request along with an unstamped self-addressed envelope of size 23 cm x 10 cm

Applications accompanied with an application fee (Non-Refundable) of Rs. 7.50 (Rs. 1.87 for SC/ST Candidates) payable by means of crossed Indian postal order to the Indian Institute of Technology, Kharagpur at Kharagpur-2 post office should reach the Registrar, I.I.T., Kharagpur by the 18th December, 1976.



**If after dreaming up an arithmetical solution
to a passenger with excess baggage, and re-checking
the Load and Trim Sheet of a Boeing,
he can still balance the balance sheet...**

he must be an Air-India Traffic Officer.

A mathematical wizard, our Airport Traffic Officer. Figures love him, always besiege him. And he's never quite himself without them. Kilos, grams, flight timings, 'jet-lags'

Give him a late-arrival flight. And a dozen businessmen who've missed their onward connections and swear their allegiance to us! He knows they won't be in the mood for love, not with us—so what does he do—he helps to flex their elbows and all is whole again.

He will juggle figures with the ease of a computer. The total weight of his 747 won't be a kilo over 351,000 kgs. And when a family of tourists comes off a flight, not speaking a word of English or Hindi, his sign language will guide them to a hotel of their choice.

He is only doing his job. Because he knows there is someone very special on board.

You, dear passenger.

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